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The Great Lakes Clean-up Program: A Role Model for International Cooperation?

ORTWIN RENN
and
RACHEL FINSON

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European University Institute, Florence

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EUROPEAN UNIVERSITY INSTITUTE, FLORENCE

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The Great Lakes Clean-up Program: A Role Model for International Cooperation?

ORTWIN RENN
and
RACHEL FINSON

Center for Technology, Environment, and Development
Clark University
950 Main Street
Worcester
MA 01610

BADIA FIESOLANA, SAN DOMENICO (FI)

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Badia Fiesolana
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PREFACE

This report explores the possibilities of transferring organizational and procedural structures of The Great Lakes water quality policies to other regions with similar environmental problems. Exploratory in nature, this report describes the policy making process regarding the Great Lakes, summarizes the viewpoints of various policy actors, and attempts to draw some general conclusions about the policy process and its transferability.

The data for this report was compiled from three different sources: official documents and other literature, telephone interviews with key actors, and personal interviews with several actors involved. The interviews were not standardized and no attempt was made to draw a representative sample of all relevant parties. The collected data from the interviews were subjectively processed by the authors and interpreted according to their knowledge and analytical framework. In some instances during the report, interview statements are identified as being drawn from a specific person; in other instances the statements were indirectly used as evidence for an observation or conclusion. In this case the impersonal statements "From the interviews we learned" or "the interviews revealed" were used. We have provided all interview partners with a copy of this report and asked them to verify all direct quotes or interview summaries.

We would like to thank all our interview partners, in particularly Barry Boyer, Warren Flynt, and Philip Weller. They have provided us with valuable information and shared with us their concerns, expectations, and evaluations of the process.

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1. INTRODUCTION

As human ability to impact the environment has increased, due to technological advances and increasing population size, the geographic extent of such impacts has expanded as well. Transnational pollution and the degradation of common areas is a concern that has been gaining increasing attention. It has become abundantly clear that a solution to such transnational problems necessitates international cooperation, either regional, bi-national, multinational, or global in scope. Since political boundaries do not respect geographic features, there are many instances where resources are shared between two or more nations. Traditionally such resources are used by each nation without regard to the needs of, or consequences to other nations. Of major concern are the synergistic or multiplicative effects that may result from such independent, but multi-party usage. For one nation to change policies or curtail activity independently for the good of such a common area would result in an unequal distribution of the burden, with questionable results. Therefore, it is necessary for all affected parties to work together towards a common agreement regarding the short and long term destiny of shared resources.

While the overall goal, such as improved environmental quality or bio-diversity, may be agreed upon, the actual mechanisms for attaining such goals are often illusive. Setting standards, providing for monitoring, agreeing on enforcement, and implementation are all extremely difficult with multiple stakeholders. Since environmental quality in itself is not a natural constant, but relies on a cultural definition, the question of what is worth protecting and what is an inevitable by-product of human activities cannot be answered in an unequivocal manner. In some instances, policy makers in different countries have adopted a policy of restoring the environmental quality of a special region or area to its appearance before human intervention. This has been done, for example, for some of the natural park areas in the Unites States. In other instances, policy makers pursue a concept that attempts to combine economic activity and the preservation of natural ecosystem functions (usually referred to as sustainable development). Finally, environmental quality has at times been defined as nothing more than a prerequisite for economic or other human activities (Brickman and Ilgen 1982). The cultural emphasis given to environmental quality is also dependent on the stage of economic development and standard of living. In a country, where basic needs for individuals are still not met, environmental protection is usually not on the priority list of public policies. At the same time, it has become clear that the neglect leading to environmental degradation in one area may lead to detrimental effects in another area and may even impact

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national or global living conditions (for example, deforestation, water use, or the release of carbon dioxide).

The need for reaching international agreements on environmental quality is crucial given these interdependencies of local pollution and translocal effects. In addition to general multinational negotiations, such as the Montreal conference on ozone destruction, agreements between the users of shared resources are an effective strategy to combine a nation's self interest with the overall goal of environmental protection. Such an agreement can only be achieved, if the political representatives in each country or region can find a consensus regarding the need to work together and make a commitment to allocate the resources necessary to attain the common goal. Each country has its own economic and environmental agenda and priorities regarding the necessity of committing resources to achieving the goals of an international agreement. In addition, within each country there are numerous interests that must be accounted for, including regional and local political entities, governmental agencies, industry, citizen groups, and persons directly dependent on the resource in question for livelihood. Depending on the form of government and the political culture, each nation has developed different structures and mechanisms for coordination between these various stakeholder groups (O'Riordan and Wynne 1987; Bauman and Renn 1988).

The nature of environmental problems is characterized by complex cause-effect relationships, interconnecting dependencies, and uncertainty about the magnitude of effects within and beyond the environment studied. The evolving knowledge regarding these linkages requires that the solutions are not just political in nature. Scientific analysis must be integrated into the policy process in order that the policy reflect the scientific knowledge as well as allow for change as new information becomes available. At the same time, however, science cannot replace the political process of defining the goals and objectives of environmental protection and of allocating monetary or legal resources of society to specific tasks. These philosophical and economic issues cannot be relegated to scientists; they require political decision making.

In most democratic societies, it is not sufficient to collect the best available scientific knowledge and to use this knowledge as a basis for the political decision making by the legitimate representatives (as assumed in the decisionistic model). Rather the policies must reflect an intricate political process in which elected officials, stakeholders, and representatives of citizen groups jointly develop appropriate policies. Socio-economic concerns as well as public values have to be an integral part of any policy agreement. Given that successful implementation will depend on the cooperation of the affected parties, it is necessary that

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such an agreement reflect the desires and values of all relevant social groups. It is hence necessary to integrate scientific expertise, political authority, and social interests and values into the decision making process in order to compose environmental policies that are technically feasible, politically implementable, and socially acceptable.

The integration of these three entities is difficult enough to accomplish on a local or national level, but it has been an almost insurmountable task in the past to accomplish harmonization of environmental policy across national borders. Not only are different stakeholder groups involved and different objectives pursued, but the style of regulation and policy making may also vary from one country to another. In spite of these problems, the opportunities for improvement in international cooperation on all three levels (science, politics, and stakeholders) have grown in recent decades, for three primary reasons:

1. The negative effects of environmental pollution are affecting all stakeholders so that the problem itself, or the crisis created by the problem, drives the actors to agree on common responses.
2. The internationalization of the scientific community and of many stakeholder groups (i.e. industry and unions) along with growing international cooperation on the political level has created a common understanding of the problem and facilitated the insight that non-cooperation is a lose-lose situation for almost all participants.
3. Environmental degradation has become a major political issue in most countries. Performance on environmental questions is now an important yardstick for evaluating politicians and political parties in regional and national elections. Public pressure has placed environmental problems at the top of the priority list of concerns in most industrialized countries.

This papers analyzes the political structure and decision making processes for environmental policies with respect to the Great Lakes, an area that is shared by the United States and Canada. These two countries, encompassing eight States within the Unites States and one Province within Canada, border at least one of the Great Lakes. An integrated approach to environmental regulation of the Lakes and to joint clean-up efforts is necessary to improve water quality. Integrated policies require cooperation of all constituencies. The institutional mechanisms to initiate and enforce coordination among the various actors and across jurisdictions are the focus of this paper. In addition, the functional and conceptual foundations of the various agreements are discussed. At the end, the paper will discuss the potential of the

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Great Lakes policy program to serve as a role model for similar types of areas or problems, specifically the Mediterranean region. The analysis will reveal that the Great Lakes Region embodies both the problems that have lead to the environmental degradation, as well as some of the most innovative mechanisms developed to alleviate these problems.

2 THE GREAT LAKES BASIN AS A MODEL

2.1 The Great Lakes Water Quality

The Great Lakes are comprised of five lakes; Superior, Michigan, Huron, Erie, and Ontario (see Figure 1). Together they hold 20% of the world's supply of fresh water. The Great Lakes Water Quality Agreements apply to all five lakes as well as the connecting channels and the St. Lawrence River to the point where the River ceases to form the international boundary. The concept of the ecosystem basin refers to all land areas that drain into the Great Lakes.

Human interactions and dependence on the Great Lakes goes back for centuries, with the impacts escalating as population increases. Currently the Great Lakes Basin is home to 335 million Americans and Canadians (Conservation Foundation 1989). The degradation of the water quality is a function of both human usage as well as natural characteristics of the Lakes that make them especially vulnerable to pollution. This vulnerability is the result of the extremely long residence times of the water, and therefore, the pollutants in the lakes. Less than one percent of the total volume of water in the Great Lakes system flows to the ocean each year (EPA, Great Lakes National Program Office, 1988). This allows pollutants introduced by human activity to accumulate and concentrate. The replacement time varies for each lake with Lake Erie having the shortest retention time of 2.6 years and Lake Superior having the longest replacement time of 191 years (Michigan Sea Grant College Program, 1990). In addition, the lakes and the flows are such that one lake flows into another in a cascading effect until the St. Lawrence River is reached. While all of the Lakes have the Lakes have been degraded due to human activity, the extent and the exact nature vary for each lake depending on the type of activity most prevalent, the natural characteristics of the lake and the location in the chain as the water flows towards the St. Lawrence River.

Lake Erie was the first lake to show visible signs of degradation. The introduction of excess nutrients from improperly treated wastewater caused eutrophication due to the increased productivity of algae growth. This decreased the visual quality of the water and depleted the oxygen levels in the water, resulting in a mass killing of fish. By 1972 the scientific community was convinced that the limiting

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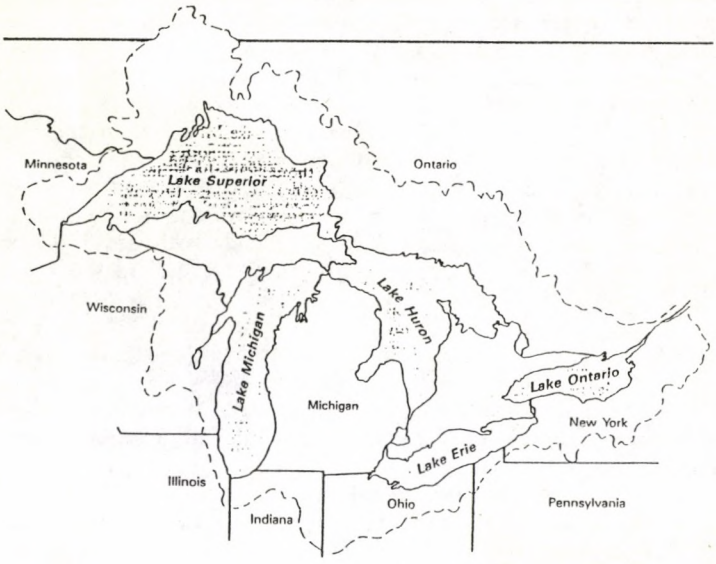
FIGURE 1: Map of the Great Lake Basin



nutrient was phosphorus and this was targeted in the 1972 Great Lakes Water Quality agreement and all successive agreements (EPA, Great Lakes National Program Office, 1988). Problems caused by nutrient loading are not completely solved, but are now considered to be under control. Current focus is on toxic pollutants.

The problem of toxic pollutants was identified in the 1960s along with the eutrophication problem, but has proven to be much more persistent and remains the most important issue regarding water quality. Over 1,000 chemicals have been detected in the Great Lakes (Great Lakes Water Quality Board, 1987). Many of these chemicals have been labeled as carcinogens, mutagens, and teratogens based on exposure of laboratory animals (Great Lakes Water Quality Board, 1983). Clean-up efforts have produced mixed results. The concentrations of some chemicals are decreasing, while for others an increase has been seen.

As the persistence of these chemicals has lead to better scientific understanding of the sources and paths of the chemicals, it has become clear that policy targeting just the water will not result in improved

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water quality. The existence of toxics deposited from land use activities, such as agriculture, seepage from improper disposal, airborne sources, and disturbed sediment, has brought about the current emphasis on a basin wide ecosystem approach.

Since the 1972 Water Quality Agreement, both Canada and the United Sates, under guidance from the International Joint Commission, have devoted considerable effort to accomplishing the pre-defined goals. Between 1972 and 1985 both countries reduced nutrient loading from municipal sewage treatment facilities such that the goal of 1 mg/l has been accomplished for Lakes Ontario and Erie. For the United States this was an 80% reduction in phosphorus loadings. (EPA, Great Lakes National Program Office, 1988). These successes are reflected in the clearer water and the return of desirable fish species to these lakes.

2.2 The Model Character of The Great Lakes for Other Regions

The environmental problems experienced by the Great Lakes, as well as the complications resulting from bi-national jurisdiction are not dissimilar to those experienced by the Mediterranean Sea. Both are large bodies of water that have multi-purpose uses, including shipping, transportation, recreation, and basic subsistence. Jurisdiction is dispersed among different countries with different values and regulatory styles. While the United States basically follows an adversarial route to setting environmental standards and composing environmental policies, Canada pursues a more European style of regulation, which is characterized by a strong preference for consensual agreements among all stakeholders and a conflict resolution process through negotiations in committees (O'Riordan 1985; Renn 1989). Although policy styles vary considerably among the Mediterranean countries and may not be comparable to either Canada or the United States, the political mechanism to build a policy making structure that is capable of integrating different regulatory styles may serve as a starting point for building similar structures around the Mediterranean Sea. The value of studying institutions and mechanisms to achieve ecosystem redevelopment in regions with similar problems, but dissimilar political structures has been demonstrated in a previous study comparing the Great Lakes institutional development with that of the Baltic Sea (Francis, 1988).

Scientific analysis has played a key role in policy formation within the Great Lakes arena, and it can be expected that such a role will be necessary in achieving consensus among the nations surrounding the Mediterranean Sea as well. The international character of the scientific communities and the universalism of science in terms

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of methodology and problem structuring have facilitated coordination of policies in the past and served as a major integrative force for finding international standards and defining multinational policies (Bauman and Renn 1989). The role that science advisory councils have played in designing and evaluating environmental policies in the Great Lakes arena, may be one of the structural mechanisms that would be the least difficult to transfer from the North-American to the European arena.

At the same time, however, there are differences that might serve as caveats against the direct transfer of lessons learned with the Great Lakes to the Mediterranean Sea. The most glaring difference, of course, is the number of nations involved and therefore the number of stakeholders impacted. In addition, there is a higher degree of diversity among the nations surrounding the Mediterranean Sea, especially with regard to economic strength and political/social structures. Whereas the United States and Canada have a history of cooperation, this is not the case with many of the Mediterranean Sea countries. Any problems associated with the bi-national or bi-cultural aspects of the Great Lakes will be exacerbated by the multinational, multi-cultural nature of the countries bordering the Mediterranean Sea. The basic philosophy towards nature and conservation also constitutes a major difference between the environmentally conscious citizenship in the U.S. and Canada and their counterparts in Southern Europe, North Africa, and the Middle East. The commitment to and values regarding the quality of the environment are dramatically different among the stakeholders in both areas.

Therefore the underlying assumption that the policies of the Great Lakes can serve as a model for the Mediterranean countries has to be taken with caution. Some mechanisms of coordination may well be suitable for the political cultures of the Mediterranean countries, others may not. This paper will close with a discussion of some of the lessons learned from the Great Lakes that appear to be transferable to the Mediterranean situation while others may be too country-specific or region-specific to be of substantial value to other areas. Of particular value is an exploration into the mechanisms developed for the clean-up and continued maintenance of the Great Lakes, since similar mechanisms, derived from scientific knowledge and technical innovations, will prove beneficial to the implementation of water quality policies for the Mediterranean Sea. There are a number of programs and approaches to the Great Lakes clean-up that may provide some insight into generic concepts and procedural advice for a Mediterranean Sea clean-up and maintenance program.

The history of cooperation regarding the Great Lakes spans seven decades, with almost two decades of policy directed towards the quality

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of the water and the maintenance of the ecosystem. Growing awareness of the extent of human impact on the Lakes has been mirrored by an escalation in the scope of the policy and the perspective of the tasks associated with each step of the clean-up and regulation. This has been accompanied by an evolution in the working arrangements between the various stakeholders in order to effectuate policy that is capable of accounting for the divergent needs of the stakeholders, while at the same time accomplishing the desires of the impacted parties.

There have been, and will continue to be, numerous adjustments and realignments in policy as the decision makers seek to reach an optimal solution. The fact that the optimal solution has not, and may never be reached should not be viewed in a negative light. The goals and needs of society change and these changes should be mirrored by modifications in the goals of the policy. Given the long history of cooperation regarding the Great Lakes, it is hoped that others in a similar situation may be able to learn from both the successes and failures of the program, in order to obtain an understanding of what institutions and mechanisms are effective when instituting policy regarding shared natural resources.

3. COOPERATIVE INSTITUTIONAL ARRANGEMENTS

3.1 Historical Overview

The initial policy concerns regarding the Great Lakes were confined to water management issues. A growing environmental ethic among citizens in both Canada and the United States, as well as obvious pollution and the degradation of the aesthetic quality of the Lakes, triggered the launching of a new phase in the cooperative history between Canada and the United States. The tremendous number of chemicals being manufactured and the ability of science to detect lower and lower levels of contamination, along with a growing awareness of such issues as bio-accumulation and the interdependencies among species, has lead to the most recent phase of the Great Lakes cooperative water quality policy. The underlying theme of this most recent phase has been the concept of the Great Lakes Basin as an ecosystem. The clean-up of toxics in the ecosystem and the prevention of additional toxic discharges into the Lakes are two areas where important cooperative policy initiatives have been undertaken.

The evolution of policy agreements, from a narrow water management perspective to a broader ecosystem outlook, can be seen as reflective of the interactions between the policy makers, the citizens, and scientists. There are many issues of concern regarding the Great Lakes that have been the subject of bi-national discussions, such as

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navigation, water diversions, fluctuations in the water levels, the introduction of foreign species, and accidents with hazardous substances (IJC,1988). Many of these issues have been addressed by the International Joint Commission, a policy body established in 1909. As a matter of necessity, the scope of this paper will be limited to a characterization of the Great Lakes clean-up and maintenance programs as a model for cooperative programs and policies.

A study of the institutions and mechanisms that evolve from any policy requires a dual focus. First, it is necessary to understand the agreements that have been signed, given the multinational orientation. Second, it is necessary to look at the implementation of the agreements by the affected parties and the institutional arrangements that evolved to accomplish the goals.

3.2. International Agreements

In 1909 a treaty between the United States and Great Britain was signed in which the questions of water quantity management and waterway transportation on the Great Lakes were addressed. The 1909 Boundary Waters Treaty was the first bi-national agreement regarding the Great Lakes. The primary topics addressed were navigation, assurance of equal and unrestrained passage for citizens of both countries, and a hierarchical listing of preferred uses of the water (Treaty, Article VIII, 1909). The International Joint Commission (IJC) was established under this agreement. The IJC is still in existence and has become a key player in the water quality issue.

Although the dominant topic of concern in this treaty is water management and not water quality, Article IV did address the problem of water pollution, noting that "waters flowing across the boundary shall not be polluted on either side to the injury of health or property on the other" (Treaty, 1909). The IJC first dealt with the issue of pollution in 1912 when the Governments of Canada and the United States asked the Commission to examine the extent and causes of pollution, specifically with regard to waterborne diseases like typhoid fever and cholera (IJC, Remedial Action Plans, 1989). Recommendations from the IJC regarding water purification eventually lead to the elimination of waterborne epidemics in the the Great Lakes Basin. Water quality issues were not given priority under the Boundary Waters Treaty, but the agreement served to set a precedent for cooperation that has been crucial in subsequent negotiations. The Boundary Waters Treaty is still in force today.

Water quality issues became the major focus of a subsequent agreement reached in 1972. In this agreement, the United States and Canada formulated goals and policies for Great Lakes Water Quality

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(Great Lakes Water Quality Agreement, 1972). The shift in focus from water management to water quality reflected a growing environmental awareness in both Canada and the United States. Public concern regarding the degradation of the Lakes and a report released by the IJC in 1970 on the quality of the Great Lakes water were both major factors in the negotiations towards this agreement (Agreement preamble, 1972). The agreement focused on the aesthetic aspects of the water. The dominant issues were eutrophication caused by nutrient loading and visual debris. The water quality objectives, as outlined in Article II, stipulated that the waters should be free of floating debris, oil, scum, nutrients that create nuisance growths, toxics and any other unsightly or deleterious materials. The following sources of pollution were directly addressed; industrial, agricultural, forestry and other land use activities, shipping and dredging activities, and pollution from municipal wastewater discharge (Agreement, Article IV, 1972).

This agreement not only reaffirmed the 1909 Boundary Waters Treaty, but it extended the scope of the IJC, including a provision that both countries were obliged to report on their activities towards compliance with the agreement. The IJC was instructed to establish a Great Lakes Water Quality Board to assist in fulfilling the obligations of the IJC under this agreement. The Water Quality Board consists of the heads, or their substitutes, of the Federal, State, and the Provincial (State equivalents in Canada) environmental agencies or departments.

The 1972 agreement was re-assessed in 1978 which lead to a new agreement between the United States and Canada. Under this new agreement the Boundary Waters Treaty remained in effect and the goals and objectives of the 1972 agreement were assimilated. The scope of concern here, while including the previous water quality goals, expanded with additional emphasis on toxic chemicals and other hazardous substances. Observations of wildlife deformations resulting from anthropogenic substances and the advances in the ability of science to detect trace amounts of chemicals in the Great Lakes and beyond had alerted the public as well as the political stakeholder groups and created sufficient political pressure in both countries to place the issue on the agenda of the IJC meetings. Public outrage was further fueled by the fact that more chemicals (in absolute quantities) were being released into the Basin ecosystem. Citizens feared that the quality of their lives would be permanently impacted and the sport fishing industry, a major economic source of income at the Great Lakes, was threatened by the prospect of fish contamination and loss of revenues.

In response to political pressure, the signatories of the 1978 agreement promised to restore and maintain the chemical, physical, and biological integrity of the waters of the Great Lakes Basin

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Ecosystem. This new goal required a shift from the pollution control perspective to a more integrative ecosystem approach. In Article II the Agreement states: "The purpose of the Parties is to restore and maintain the chemical, physical, and biological integrity of the waters of the Great Lake Basin Ecosystem" (IJC, Great Lakes Water Quality Agreement, 1978). The quality of the Great Lakes Basin was viewed as an integrated system of cross-media indicators, including air pollution, land use, agricultural practices, water use and pollution, and effects on living organisms in and around the Great Lakes. In addition, the concept of zero discharge regarding toxic substances was introduced. The role of the IJC was again confirmed and expanded.

To support the activities of the IJC and to assess and evaluate scientific information for the Water Quality Board and the Commission, a new group, the Great Lakes Science Advisory Board, was established. In addition, a Great Lakes Regional Office of the International Joint Commission was added in order to assure administrative support for the IJC and the two Boards, to organize public information programs, and to conduct public hearings (IJC, Great Lakes Water Quality Agreement, Article VIII, 1988).

Almost ten years later, in 1987 the agreement of 1978 was amended. This amendment was designed to facilitate implementation of arrangements previously stipulated and to address new issues. In order to facilitate implementation, specific programs were outlined as well as timetables for compliance. New issues of concern that were addressed included atmospheric deposition of toxic pollutants onto the surface water, contaminated sediments, groundwater contamination, and non-point sources of pollutants. Two important vehicles for the implementation of the goals were the Remedial Action Plans (RAPs) and the Lakewide Management Plans. Areas that had previously been identified as "hot spots" are obliged to complete a Remedial Action Plan for improving the environmental situation in these specific locations labelled as Areas of Concern. The agreement on Lakewide Management Plans mandated that the two countries should compose bi-national strategic plans for all the lakes except Lake Michigan where the United States has sole jurisdiction. These plans are to address lakewide critical pollutants. The focus of these programs is on the clean-up of existing pollution and the achievement of a goal of zero discharge of toxic pollutants in the future.

3.3 Agreements between Federal and State/Provincial Level

To accomplish the goals set forth in the international agreements, cooperation and support of the eight affected U.S. States and the province of Ontario must be assured. While the Federal governments of

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the two countries signed the agreements, the actual implementation has been left to the state and local governments.

Regarding the cooperation within the United States, there are no agreements between the Federal government and any of the States specifically addressing the implementation of the Great Lakes Water Quality Agreements. Furthermore, the Federal government does not allocate any funds in direct association with the obligations that the United States committed to when signing the Great Lakes Water Quality Agreement and its amendments (Kent Fuller, personal communication). There is currently a bill in the Senate that would legislate many of the components of the Water Quality Agreement, but it is unclear whether federal funding is provided to the States to implement the bill (Great Lakes United, Action Update, 1990).

In contrast to the United States, the federal government of Canada and the government of the Province of Ontario have entered into an agreement to further the goals set forth in the Water Quality Agreements. This agreement, the Canada Ontario Agreement Respecting Great Lakes Water Quality (COA) was first signed in 1971. It has since been reaffirmed and is still in force. In addition to coordinating several committees serving as institutional links between the Canadian Government and the Province of Ontario, this agreement also provides for funds to fulfill the international obligations. The Federal and Provincial governments have agreed to share the costs incurred by the Province in implementing the Great Lakes Water Quality Agreement. In 1989-90 the combined contributions was not to exceed 3, 740, 000 Canadian dollars (Federal Signing Authority).

3.4 Inter-State and Provincial Agreements

On the Canadian side of the Great Lakes, Ontario is the only province that directly borders the Lakes. Quebec encompasses some of the St. Lawrence River, and therefore is also concerned with the quality of the Great Lakes water. Because the majority of the jurisdiction on the Canadian side is within one province, there has been no need for inter-provincial agreements.

In the United States, eight states share at least some of the coastlines of the Great Lakes and are interested in regulating and preserving the environmental quality of the Lakes. These eight states formed the Council of Great Lakes Governors in 1983, a non-profit organization to integrate the policy and goals of the member states regarding the Great Lakes (Great Lakes, Great Future). While Ontario and Quebec are not party to this agreement, they have been invited to participate in the studies and activities that the Council has undertaken. In 1985 the Council signed the Great Lakes Charter. This agreement,

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recognizing that the Great Lakes transcend political boundaries, stipulates that the states must work together to preserve and maintain the water in the Great Lakes as a resource that is important to the well being of all the states. The main impetus for this agreement was the realization that water, as a scarce resource was very valuable and that there was considerable interest in the idea of exporting Great Lakes water out of the region.

In 1986 the governors signed the Toxic Substances Control Agreement. While the Great Lakes Charter is concerned with preserving the quantity of the water, the Toxic Substances Agreement deals with the quality of the water. In 1988 the Premiers of Ontario and Quebec joined the governors by signing a Memorandum of Understanding to the Toxic Substances Control Agreement (Council of Great Lakes Governors, Summary, 1989).

To implement the goals specified by the Toxic Substance Agreement, and the international agreements signed by the United States and Canada, the Great Lakes Protection Fund was established in 1989. The purpose of the fund is to provide a permanent funding source for research on the effects of toxics, contamination clean-up, and community education about toxic substances in the Great Lakes Basin, both regionally and on the State level (N.Y. DEC, February 1990, p. 2). The participating states established a $100 million regional endowment fund to launch a comprehensive plan that would accomplish the goals and objectives as outlined in the above mentioned agreements. The level of contribution is based on the water consumption and usage of each state. An estimated $10 million is expected to be generated on an annual basis from the investment interest (Council of Great Lakes Governors, An Investment in Our Region's Future). Two-thirds of the money is targeted for regional use and one-third will be returned to the States for their use.

Although all affected States have agreed by 1990 to contribute to the fund (The State of New York was the last to join the agreement), the funds have not been allocated in many States and may not be released due to the fiscal crisis that many States are facing. The State of New York, for example, plans to raise money for the fund by imposing a surcharge for large water withdrawers within the Great Lakes Basin. This proposal is controversial and may not be passed by the legislature in that State. As of May 1990, a total of 39.4 million dollars were already contributed to the fund, leaving 60.6 million to be raised.

In response to the Exxon oil spill in Alaska's Prince William Sound, the governors, realizing that the Great Lakes were subject to such a disaster, signed the Great Lakes Oil Control Strategy Agreement. Under this agreement the governors plan to work with the Coast Guard and other appropriate agencies to identify sources of spills and to join

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efforts to combat oil spills should they occur. In addition, the governors agreed to develop a basin wide capability to handle such a spill.

As with the international agreements, the inter-state agreement followed the same path of evolution in the policy from water management to water quality improvement. The states and provinces have primary responsibility for fulfilling the obligations stipulated in the international and inter-state agreements. The degree of concern and the level of response varies among the States and Provinces. The State environmental agencies and other appropriate State agencies have primary responsibility for implementation. They work in conjunction with the local governments that are affected by the particular policy measure, for example within the Remedial Action Plan. To our knowledge, no formal agreements within any of the States regarding obligations under the Water Quality Agreements have been signed.

4 THE ORGANIZATIONAL STRUCTURE

4.1 Overview

Given the decentralized nature for implementation of the Great Lakes Water Quality Agreement, and the diversity of aims and goals that the impacted actors have, it is not surprising to find many levels of jurisdiction and activity. There are numerous organizations and committees addressing various problems regarding the Great Lakes water quality. The Great Lakes Water Quality Agreement is a centralized agreement between Canada and the United States, but the implementation is decentralized thus allowing for a broad range of actors and programs. These include international cooperative organizations, national and state/provincial agencies, educational, scientific and citizen participation organizations. A sampling of the types of institutions that have evolved in response to the degradation of the water quality of the Great Lakes provides some useful insights into the evolution of issues as well as the institutional and spontaneous responses to external events and political topics.

4.2 International Structures

International structures have developed in direct response to the Water Quality Agreements, such as the International Joint Commission, as well as between governmental agencies with no legislative mandate. The International Joint Commission (IJC) has the longest history of any organization concerned with the quantity and quality of the Great Lakes Water. The Commission is mandated by both the United States

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and Canada and has evolved as the primary oversight and coordinating body in the Great Lakes Region.

The IJC consists of three Canadian and three United States commissioners. The Canadian members are appointed by the Primeminister in consultation with the Governors' Council of Canada and the United States members are appointed by the U.S. President with the advice and consent of the U.S. Senate. The Commissioners do not serve as national representatives of their countries. Instead they are supposed to act as a nonpartisan unitary body seeking solutions that are in the best interest of both countries (IJC Activities, 1988). Being appointed by the highest executive bodies in each country they usually possess enough political influence and prestige to move beyond their pre-defined task if they choose to exercise that influence. At the same time, however, they reflect the environmental policy of the current administration and have alliances to their political cliental in Washington or Ottawa. During our interviews with representatives of citizen groups and scientists, the political character of the appointment, in particular the selection of political allies who need to be rewarded for their support by giving them a prestigious, but not very powerful position, was often perceived as an obstacle to efficient and consistent policy making. In the past, this criticism was specifically raised with regard to some of the Reagan appointees.

In spite of this occasional criticism of the IJC, all observers agree that the high level appointment and the broad mandate of the Commission have helped to facilitate international agreement and to launch successful remediation programs. The IJC has the formal authority to make binding decisions in the event that both governments refer an issue to them for that purpose. This provision, however, has not yet been used (IJC, Activities 1988). The functions of the IJC have remained in the realm of making reports and recommendations and acting to consolidate information and assess how the respective countries are furthering compliance with the Great Lakes Water Quality Agreement. The IJC continues to fulfill its mandate in water management, including addressing issues of water diversions and fluctuations in water levels. In addition, as issues of water quality have moved into the forefront of concern, the IJC has also played an important role in the development of new environmental policies and novel approaches to environmental management. As the dominant issue of concern has moved from pollution to toxics and now to the basin wide ecosystem approach, so to has the focus of the IJC.

Under the 1978 Great Lakes Water Quality Agreement the IJC is required to make a full report to the Governments of the United States and Canada and to the State and Provincial governments on the progress towards the achievement of the objectives in the Agreement.

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This report is supposed to be filed on a biennial basis. The first report was filed in 1981 and the IJC has been consistent in filing biennial reports since then. In contrast, it was not until the 1987 amendment that the countries were required to report to the IJC on their activities towards compliance with the goals set forth in the Agreements. In 1988, both governments complied with this stipulation, filing the first of a series of reports that should help the IJC assess the activities of the respective governments. The report from the United States was prepared by the Environmental Protection Agency's Great Lakes National Program Office (this office is explained later). The Canadian report was prepared jointly by the Governments of Canada and Ontario.

The difference in the parties responsible for each country's report is reflective of the different implementation policies of the two governments. Whereas the United States sets environmental policies through the various legislatures, but relies on its federal environmental protection agency with its local branches to implement environmental policies and to monitor the Great Lakes, the Canadian government perceives the challenge posed by the situation of the Great Lakes as so grave that Federal and Provincial governments join forces to initiate programs and to control implementation of their own programs as well as the IJC recommendations. The integration of policy making, fund granting, and enforcing functions on the governmental level has helped Canada to develop a consistent program for research, monitoring, clean-up, and enforcement of regulations. The United States, on the other hand, is more fragmented. Although new issues and ideas are more often generated on the U.S. than on the Canadian side, the integration of the various policy steps from research to successful implementation of laws and clean-ups is often lagging behind or even absent. A report recently released by the U.S. General Accounting Office criticized the United States responsiveness, citing the fact that the U.S. has failed to respond to a third of the IJC's recommendations (The Great Lakes United, Fall 1989). The need for both countries to report to the IJC has caused them to devote more effort to streamline their environmental policies and to follow up on the success or failure of previous policies. The country reports, have thus enhanced accountability and communication.

Two additional Boards have been set up by the IJC under mandate from the 1972 and 1978 agreements. These are the Great Lakes Water Quality Board and the Science Advisory Board. The Water Quality Board is the principle advisor to the IJC on issues related to compliance with the Water Quality Agreements. The members of the Water Quality Board represent the State and Federal Agencies or Departments responsible for environmental policy making and/or

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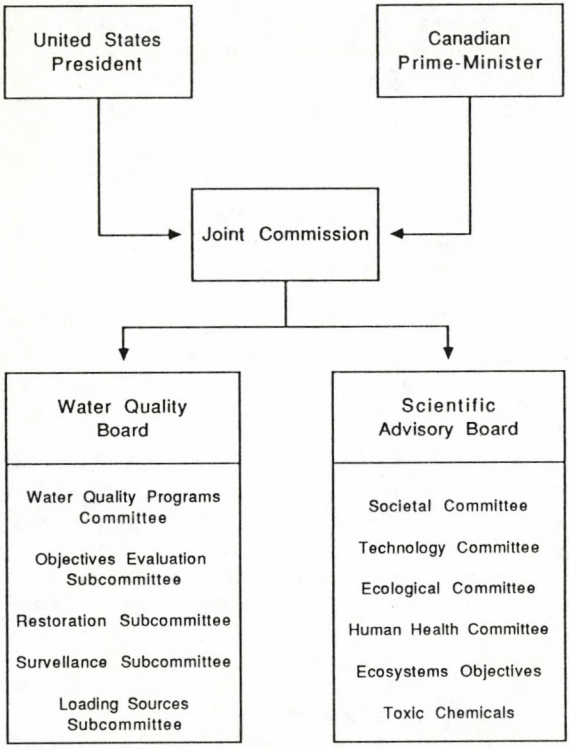
Fig. 2: Structure of the International Joint Commission



policy enforcement. The purpose of the board is to convert IJC recommendations into practical guidelines for the various agencies and to monitor the success or failure of the various programs. The Water Quality Board has been more cautious and conservative in its policy formulations than the Commission itself or the Scientific Advisory Board, probably reflecting the administrative preference for continuity of established programs and the need for consensual agreements between the various, often antagonistic stakeholder groups.

Since 1972 the Water Quality Board has filed biennial reports with the IJC in order to document the progress that has been made

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towards the goals in the Water Quality Agreements. There are numerous sub-committees that assist the Board (See Figure 2). The Water Quality Board is responsible for reviewing the Remedial Action Plans that are submitted to the IJC for approval. The Board also sponsors workshops on various issues to assist it in preparing the reports to the IJC. Some of the recent workshops include (IJC, Activities, 1988):

- Chemical Loading Workshop, Toronto 1987
- Pesticide Mapping Workshop, Windsor 1988
- Specimen Banking Roundtable, Detroit, 1988
- Tributary Monitoring Workshop, Toledo 1988

These workshops can also serve as a vehicle for input and advice from experts in the field. Through these workshops, new scientific evidence is incorporated into the deliberations of the Water Quality Board and special interest groups have the opportunity to raise their concerns.

The Science Advisory Board was established in 1978 in order to assist the IJC and the Water Quality Board in fulfilling their duties. At present, the board consists of eighteen scientists, representing both Canada and the United States. The Science Advisory Board is a self-recruiting body. After its initial establishment with well-known scientists, new members are added by group appointment. Recently the group added new members representing the fields of eco-toxicology and ecology. Although the IJC has the formal right to approve or disapprove new members, all nominated scientists are almost automatically approved. This appointment process ensures that only scientific qualification and not political considerations govern the composition of the Board.

The meetings of the Scientific Advisory Board focus on the interaction between the Board members, invited experts in the field, other scientists and interested citizens. Some of the topics addressed by the Science Advisory Board include: Health, spills, biotechnology, ecosystem objectives, public participation and Remedial Action Plans, education, toxics management, and global climate change. (Sub-committees are shown in Figure 2)

One of the unique features of the Great Lakes Water Quality Agreement and the 1987 Protocol Amendment is the obligation to integrate all levels of interest in the policy formulation process. Citizen participation is specifically indicated as an integral part of the Remedial Action Plans (RAP) and the Lakewide Management Plans. Both will be discussed later.

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The Joint Commission has no funds to implement the policies that they suggest or even mandate. The budget only covers their own policy making process and the work of their staff members. The Commission can request that the Federal or State agencies responsible for environmental protection in both countries implement the recommended policies, but they have no immediate monetary or political power to enforce them. This gap between the power to set goals and the lack of funds to implement these goals has been a major cause of frustration and disappointment for many stakeholder groups in the area.

As a central oversight body, the IJC, along with the Water Quality Board and the Science Advisory Board, has played a pivotal role in information distribution, education, and monitoring the activities of both Canada and the United States. In spite of its limited political authority, the Committee has been successful in launching new cooperative agreements between the U.S. and Canada and in setting the stage for more cooperation among the U.S. States. The Committee and its Boards are also active participants in the evolution of topics and perspectives with regard to the environmental quality that the residents in both countries demanded.

In addition to the Joint Commission, other bi-national organizations have been established to improve the water quality in a more indirect way. For example, the Great Lakes Fishing Commission oversees all the fishing activities in the Lakes and establishes rules and policies for fishing and habitat preservation. The Commission has a subcommittee for each Lake where federal agencies and the bordering States' and Provincial agencies are represented.

4.3 Federal to State/Province Structure

4.3.1 Overview

The nature of the Great Lakes Water Quality Agreements is one of centralized goals with decentralized implementation. The agreements set goals and priorities, delineate effluent limits and set timetables for compliance, but they do not tell the countries how to achieve these goals. Compliance methodology has been left up to the individual countries. Canada and the United States have taken very different strategies to implement these goals. In both cases the Federal governments have placed the primary responsibility for compliance with the State, Provincial and local governments.

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4.3.2 The United States

In the United States, the Federal government, after having signed the Great Lakes Water Quality Agreements, left implementation primarily up to the States and local governments. As a result of the 1972 agreement, many municipalities received aid from the Federal government in order to construct, upgrade, and maintain wastewater treatment facilities. The States have been left with primary responsibility for developing the Remedial Action Plans (RAPS) for Areas of Concern. This is generally done through the state environmental protection agency in conjunction with the local government and concerned citizens. Since the budgets of these agencies are not increased to handle the increased responsibility a situation has developed in which the States do not have adequate resources to develop the RAPs and implement the Water Quality Agreements as rapidly as many would like (Kent Fuller, personal communication).

While there have been no funds allocated for the states to fulfill their obligations under the Water Quality Agreements, many of the issues of concern fall within the jurisdiction of other Federal agencies and programs; such as the U.S. Environmental Protection Agency, the U.S. Army Corps of Engineers, the Fish and Wildlife Service, the U.S. Department of Agriculture, and the U.S. Geological Survey (EPA, 1988). Since the areas around the Lakes belong to three different regional districts of the U.S. Environmental Protection Agency, EPA decided to establish a coordinating center for environmental activities for the Great Lakes. This center, called "The Great Lakes National Program Office (GLNPO)", was created in 1978 to oversee the United States' obligations under the Water Quality Agreement. The Clean Water Act of 1987 established formal statutory mandate for the GLNPO. The primary function of the GLNPO is one of coordination between the various government agencies that are involved and private organizations. GLNPO pursues four major goals (EPA GLNPO, 1988) p. 3):

1. Coordination of all Federal and State activities regarding the Water Quality Agreements and the respective environmental laws.
2. Surveillance and monitoring of the environmental quality of the Great Lakes.
3. Organization of remedial demonstration projects.
4. Coordination and initiating of further research.

The EPA's Great Lakes National Program Office (GLNPO) has been particularly instrumental in coordinating the activities of various agencies, both Federal and State, and in assisting the State and local

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governments in the development of the RAPs. They also serve as a forum for scientists, regulators, and citizen groups to express and discuss their views.

The activities of EPA and other Federal agencies (Corps of Engineers, National Oceanic and Aquatic Administration, Soil Conservation Agency and Fish and Wildlife Agency) are based on a series of environmental laws and statutes. Among them are:

1. The National Pollution Discharge Elimination System (NPDES)
2. The Clean Air Act (Point Source Reduction)
3. The Toxic Substance Control Act
4. The Federal Insecticide, Fungicide, and Rodenticide Act
5. The Safe Drinking Water Act
6. The Resource Conservation and Recovery Act
7. The National Conservation and Recovery Act
8. The Corporate Liability Act

All these statutes provide EPA with the legal framework to regulate point sources and to control ambient water and air quality. While the first efforts to reduce the levels of effluent discharges into the Lakes has been fairly effective, in particular the clean-up of municipal and industrial discharges, it has proven more difficult to reduce the levels of pollutants from non-point sources, such as agricultural practices and air pollutants absorbed by the surface water.

The activities of the eight States bordering on the Great Lakes have been focused on the The Great Lakes Protection Fund, initiated by the Council of Great Lakes Governors in February 1989. It is the first cooperative funding program in the United States specifically for the purpose of fulfilling the countries obligations under the Water Quality Agreement. EPA's Great Lakes National Program Office (GLNPO) and the Council of Great Lakes Governors entered into an agreement by which the GLNPO will help the Council implement the Great Lakes Toxic Substances Control Agreement.

In addition to these organizational efforts focused on environmental quality, other institutions play an important role for coordinating environmental policies for the U.S. The Great Lakes Commission, located in Michigan, is primarily concerned with economic development and coordination of the eight border States. The Commissioners, usually high officials from each state, are supposed to settle disputes between the States through negotiation as a means to avoid litigation. In recent years, environmental issues have become more prominent in the deliberations and play a major role in negotiations for future development plans.

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4.3.3 Canada

Coordination of Canada's implementation activities is less complicated than that of the United States since Ontario is the only Province that borders the Great Lakes. In addition, the government of Canada has committed itself to participating, coordinating and funding the Canadian obligations towards the implementation of the Great Lakes Water Quality Agreements. The Canada-Ontario Agreement on the Great Lakes Water Quality (COA) has been central to the Federal/provincial cooperation regarding implementation of the Water Quality Agreement. Under this agreement, the Canadian government, not only helps to fund the activities of the province of Ontario towards compliance with international obligations, but it also maintains an active role in policy formation.

The COA Board of Review guides the implementation of the Canada-Ontario Agreement. The Federal representatives on this board include persons from Environment Canada, Fisheries & Oceans Canada, and Agriculture Canada. The provincial representatives include the Ministry of the Environment, the Ministry of Natural Resources and the Ministry of Agriculture and Food (Canada-Ontario Annual Report 1988, p. 4). In addition to the joint commitments towards meeting international obligations through the Canada-Ontario Agreement, both the Federal and the provincial governments have embarked on programs that should also further the goal of compliance.

As with the United States, there are numerous Federal agencies whose jurisdiction falls within the realm of the Great Lakes. For example, Environment Canada, Agriculture Canada, Fisheries and Oceans Canada, Health and Welfare Canada, and Transport Canada (Christine Hogan, personal communication). In addition, under the 1989 Great Lakes Action Plan the Federal government has committed spending $125 million towards implementing the new provisions of the 1987 protocol; $50 million is for the Preservation program, $20 million is for the Health Effects program, and $55 million goes towards the Clean-up fund which includes development of the RAPs (Environment Canada, Great Lakes Action Plan).

One example of a provincial program is the Municipal Industrial Strategy for Abatement (MISA). This is a major initiative by Ontario to reduce water pollution from industrial and municipal dischargers. It includes monitoring discharges and assessing fines if permissible effluent levels are exceeded (Environment Ontario, Background Information on MISA

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4.4 Non-governmental Organizations

In addition to all the State and Federal agencies, the international commissions, the inter-state organizations, and the intra-state committees, there are many private organizations and groups which act as public interest groups, research coordinators, or policy facilitators in the Great Lakes Arena. Because of the vast number of actors in the arena, three organizations were selected for inclusion in this sub-chapter. These three organizations can serve as examples of the three major types of non-governmental actors: researchers, policy brokers, and citizen groups.

The Center for the Great Lakes with branches in Chicago and Toronto is one of the major research organizations in the area. Not affiliated with any stakeholder groups or public university, the Center has gained a reputation for unbiased reports and thorough analysis of problems. Most of its funding comes from private foundations, both from the United States and Canada. The Center also accepts special grants from various political constituencies in order to work on commissioned reports or studies.

The topics of the Center's research include issues of economic development, consequences of industrial activities, impacts of waterway transportation, and environmental consequences. Some of our interview partners complained that the Center has often taken a rather conservative approach to policy questions by recommending soft actions or low cost remedies. This criticism was not echoed by the governmental actors who often rely on the Center for advice.

One of the broker organizations is the Great Lakes Program. This program is a joint effort of the State of New York and the State University of New York in Buffalo. Although the program is anchored in New York, its activities reach out to the whole region. The task of the program is to serve as a translator between scientists, regulators, and the public. The program directors organize conferences, workshops, and public meetings and prepare documents for regulators and the public. They inform the political representatives of both countries about the issues and try to convey the scientific paradigms underlying each new phase of research. For spring 1991, they plan to organize televised public hearings at the sites of remedial actions plans. During these hearings experts, regulators, and the representatives of each community can interact live in front of TV cameras and express their opinions, preferences, and frustrations.

The most important public interest group is Great Lakes United. This citizen organization was founded in 1982 in order to strengthen the role of citizens in the formation and implementation of policies regarding the Great Lakes. It includes both, individual members as well

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as organizations within the Great Lakes basin. The individual membership currently totals 800 members and there are over 180 member organizations (Great Lakes United 1989). Through the number and diversity of the member organizations, Great Lakes United has gained a strong political influence in the Great Lakes arena. Membership organizations include environmental and conservation organizations, the United Auto Workers (Union), public libraries, state legislatures, fishing and hunting interests, and public health interests. Citizens from all eight U.S. States and the Province of Ontario are represented in this umbrella organization in addition to supporters from other regions.

Great Lakes United is governed by 25 board members who are elected by the organizational members. Individual members have no voting rights. The board is responsible for formulating policies and advocating improvement of the environmental quality of the Lakes. The Board is supported by a staff of eight people who try to implement the policies adopted by the Board, to influence the political decision making process, and to inform the public about the organization's perspective on the relevant issues. The diversity of groups represented within the organization makes it necessary that all policies focus on common and consensual issues, that all political statements are discussed with potentially affected member organizations prior to making them public, and that all positions of Great Lakes United are not binding for individual member organizations.

Great Lakes United has been instrumental in keeping citizens informed on the current issues and problems and encouraging citizens to keep pressure on their representatives. In 1986, the Great Lakes United Water Quality Task Force was formed. Disappointed with the mechanisms for public input provided by the IJC and the Federal governments, the task force organized nineteen hearings around the Lakes. These hearings addressed the research results regarding the water quality of the Lakes and provided a public forum for citizen input and concerns (Great Lakes United 1987). Pressure from Great Lakes United, under mandate from the citizens that attended these hearings, was instrumental in the outcome of the 1987 protocol amendment of the IJC. Under this amendment, the procedures for developing Remedial Action Plans were addressed. Annex 2, Section 3 of the 1987 Amendment Protocol stipulates that "the parties, in cooperation with State and Provincial governments, shall ensure that the public is consulted in all actions undertaken pursuant to this Annex". This citizen participation has evolved as an institutional aspect of the water quality policy mainly through the activities of Great Lakes United. Citizen Advisory Committees are now required as a part of each Remedial Action Plan.

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The activity of Great Lakes United to push a plan to clean up contaminated sediments was less successful. In spite of major efforts to mobilize public support and to involve researchers in pressing for a clean-up, political actions have not been taken and do not appear to be in sight. This lack of initiative from the legislature and the agencies can partially be attributed to the controversy within the science community on the risks and benefits of sedimentary clean-ups, Many scientist have expressed doubts that a clean-up would actually improve water quality since the disturbance of the sediments may lead to more toxic concentration in the water than without the clean-up.

5. ENVIRONMENTAL CLEAN-UP PROGRAMS

5.1 Remedial Action Plans

The formulation of Remedial Action Plans (RAPs) are required in the 1987 protocol as a means of dealing with so called Areas of Concern. The Areas of Concern are regions within the Great Lakes that are out of compliance with the bi-national standards. There are a total of 42 RAPs in progress at this time. Twelve are on the Canadian side, 25 are on the American side and five are being developed jointly. Many of these areas had been identified as "Hot Spots" as early as 1973, but not until the IJC took the initiative in 1985 and obliged the States to complete a list of areas of concern were the RAPs firmly established and mandated. Some of our interview partners criticized the selection of the 42 regions as being inconsistent and incomplete. Some highly contaminated areas were allegedly not included while some areas with marginal excess values above the standards had been selected for the list. All participants, however, welcomed the initiative of the Joint Commission and promised to cooperate in accordance with their role assignment.

The RAPs might best be characterized as a vertical decision making process. They are mandated in the international agreements, reviewed by the IJC, written by the State and local governments with help from the Federal governments and augmented by input from citizen groups, business, and industry. The need to involve citizens in formulating the RAPs is specifically mentioned in the 1987 protocol. The focus of the citizen participation is the Public Advisory Committee, composed of interested citizens. The citizen group Great Lakes United was instrumental in institutionalizing the role of citizen participation into the RAPs and has continued to remain active in the formation of the RAPs.

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The RAPs are developed in a three stage process and are submitted to the IJC and the Great Lakes Water Quality Board for review after each stage. The stages are:

1. Problem definition, description of environmental conditions and identification of sources.
2. Identification of options, selection and implementation of preferred options.
3. Monitoring and surveillance to evaluate effectiveness.

The Water Quality Board is responsible for monitoring and evaluating the process and overall effectiveness of the individual RAPs. The RAPs are the epitome of combining centralized goals with decentralized implementation. The IJC oversees the RAPs to ensure that they accomplish the goal that they were established for, but they are written on a localized basis. This local participation allows for the municipalities, industry, and citizens to participate in the planning. This involvement in the process should help to ease the potential obstacles for implementation and achieve compliance of the actors since they were part of the policy making process. In this way they will agree with the objectives of the plan and have a stake in the successful outcome. At the same time, the success of a particular RAP is highly dependent on the participation and cooperative skills of the persons involved

In several interviews with people involved in the RAPs, concerns were raised that the mandated mixture of citizens, industry, municipal officials, and others paralyzed the process more than that it facilitated a compromise. The goals and objectives were hardly disputed, but when it came to concrete requirements putting burdens on municipalities or industries, it was difficult to find a common denominator and to set policies that were able to actually reach the commonly agreed goals. Furthermore, citizen organizations often felt frustrated that they were forced to compromise with industry and municipalities without having the right to state their position independently. The outcomes of the participation meetings were interpreted by the Water Quality Board as the "voice" of the people, but the citizens involved in the RAPs perceived the recommendations of the Advisory Board as compromises between antagonistic interest groups and not as their preferred point of view.

The structure of the RAPs, with the high level of governmental and citizen involvement, has been a learning process for all who have taken part in the process. The Great Lakes Water Quality Board has made the following observations regarding the process (1989 Report on Great Lakes Water Quality, Executive summary):

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1. Successes:

- o Enhanced Communication and institutional cooperation.
- o Greater Public Awareness.
- o More emphasis on control of contaminants at the source.
- o Greater emphasis on remediation of contaminated sediments.
- 0 More financial and human resources being focused on Areas of Concern.

2. Challenges:

- o Identifying responsibilities for remediation and increasing accountability.
- o Developing political and business support.
- o Moving forward with remediation, despite "imperfect" data bases.
- o Developing long-term funding mechanisms while sustaining public support.

3. Observations:

- o It is taking longer than expected to develop RAPs.
- o Public expectations are high.
- o Available resources are limited.
- o The evolution of RAPs towards integrated resource management is consistent with the ecosystem approach of the Agreement.

The evaluation of the Water Quality Board has been echoed by many stakeholder groups. Barry Boyer, professor of law at the State University of New York in Buffalo, who was involved in several RAPs in New York, concluded in our interview that the success or failure of each RAP was more determined by idiosyncrasies of the special situation than by any systematic properties of the process. The more an area was already in a transitional stage of its economic development, the more --so his impression-- were all stakeholders motivated to find a common solution and to initiate novel approaches to clean-ups.

The crucial point was the linkage between economic development and environmental quality. If environmental protection was seen as an integrative part of the future economic development, the RAP process was easier to implement and people felt more motivated to participate. In areas of economic stagnation or with a predominance of established manufacturing industries the process dragged on and the motivation for participation was low, even among the affected population. In accordance with the theories of relative deprivation, the low

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mobilization rate in already deteriorating areas does not come unexpected. As Boyer pointed out, however, these findings are not consistent for all areas of concern. Some economically deprived areas developed excellent RAPs while other boom regions did very poorly.

The executive director of Great Lakes United, the umbrella organization for more than 180 citizen groups, Phillip Weller, perceived the success of the RAPs as being dependent on five factors:

1. The ability of the RAP organizers to create a vision of the future of the area including economic development, urban or rural identity, and environmental quality.
2. The political support of and symbolic gratifications by the municipal government and other political bodies for the participants of the RAPs. The members of the RAPs Committees would need constant reinforcement and some gratifications along the road.
3. The potential for a wide representation of interest groups and citizens in the RAP committees and a community wide recognition of their importance.
4. The ability to provide scientific knowledge to the members of the Committee and at the same time to enhance their confidence in their own ability to digest all the information and to form prudent judgments.
5. The willingness of the participants to integrate different values and cultural perspectives into the RAPs and to incorporate the ecosystems approach as the basis for designing the Remedial Action Plans.

In other interviews with scientists or representatives of citizen groups the lack of immediate follow-up for implementing the recommendations of the RAPs was also seen as a critical issue, at least in the United States. So far no funds have been dedicated to finance the implementation of the RAPs in the United States. The participants of the process were left "in the dark" about the extent and timing of State or Federal money allocated for this purpose. As long as the RAPs include voluntary commitments by the participants, this issue is not important. When the clean-up stage begins, funding is a crucial part of the plan.

The Toxic Substances Control Act, which serves to restrict the distribution of critical pollutants, has been of major importance for the implementation of the U.S. RAPs. Through its provisions, point source polluters can be forced to reduce their emissions. Also, federal funds for clean-ups can be appropriated through this Act. In addition, some of the Areas of Concern receive money under the Resource Conservation

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and Recovery Act for clean-up of areas that fall under the jurisdiction of the Superfund. In addition to funds from each State, The Council of Great Lakes Governors, having signed the Great Lakes Toxic Substances Control Agreement, designated portions of the Great Lakes Protection Fund for regional projects. Since this fund is still in its infancy, it is not quite clear yet how much will be spent for the RAPs. Overall, the State and local governments have not received enough funding to adequately address the RAPs or other aspects of the Great Lakes Water Quality Agreements.

The lack of funds and the uncertain future of the RAPs have been the most frequently voiced concern in our interviews. However, many observers of the situation expressed cautious optimism that the implementation process will be initiated once the RAPs are completed. The whole RAP procedure with its publicity and political clout has created so much legitimation pressure that ignoring its outcome would be equivalent to political suicide. In addition, many regions want to attract new businesses and population: these goals can be reached only if the environmental quality of the respective region is at least satisfactory. Being on a list for violating environmental standards creates negative images and appalls newcomers. Finally, corporations and other point source emitters are well aware that this might be their last opportunity to reach a voluntary agreement. In anticipation of tougher environmental standards and their enforcement, many industries perceive advantages in cooperating with the RAPs because this helps them to express their responsibility towards their host community and to increase their environmental reputation.

The RAPs may therefore succeed in areas where remedial actions require ongoing commitments from all participants. More problematic, however, is the situation where funds are necessary to clean-up areas that are already polluted or contaminated, but nobody can be identified as legally responsible for the damage. If the parties involved in the RAPs can not locate funds for such a clean-up (for example, from the Superfunds program), the program cannot be implemented.

On the Canadian side, the government of the Province of Ontario and the Federal government have already identified funds for implementing the RAPs, an equivalent commitment of the U.S. is still missing. If the transition from planning to implementation is interrupted or delayed for a long time, the likely consequence will be increased frustration on the side of the participants and a growing distrust in the environmental policy making bodies.

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5.2 Lakewide Management Plans and Point Source Impact Zones

As with the Remedial Action Plans, the Lakewide Management Plans (LMP) for Critical Pollutants are mandated under the 1987 Amendment. The state, local, and federal governments associated with each lake are to identify, design, and implement plans for each lake in which they reduce the presence of critical pollutants. These plans are to take place in a four stage process with review and approval by the IJC following each step. Following are the designated steps:

1) Identify critical pollutants, evaluate all existing information regarding concentrations, sources, and pathways.
2) Determine the load reduction necessary to meet international obligations.
3) Identify remedial actions necessary to accomplish the specified goal and the persons or agencies responsible for implementation.
4) Monitor the activity and pollutant levels and report to the IJC when the specified level has been achieved.

The LMPs are similar to the RAPs, including the requirement for citizen participation, but the goal is much more difficult to achieve because of the wider geographic scale and the fact that the lakes are subject to airborne pollutants that the bordering governments may not have control over. The 1989 Report on Great Lakes Water Quality prepared by the Great Lakes Water Quality Board, indicates that the process of designing LMPs cannot begin formal planning until the IJC receives a more precise definition of the meaning of the mandate.

Point Source Impact Zones (PSIZ) are areas that are associated with direct discharge of industrial or municipal wastes that are significant. These are to be reported to the IJC along with plans for reductions in the discharge consistent with the policy of virtual elimination of persistent toxic substances. As with the LMPs, the IJC is requesting a clearer mandate from the parties to the agreement.

5.3 Niagara River Toxics Management Plan

The Niagara River Toxics Management Plan is a cooperative effort between Environment Canada, the U.S. Environmental Protection Agency, Ontario Ministry of the Environment and the New York State Department of Environmental Conservation. By signing the Declaration of Intent in 1987, these four jurisdictions committed to a cooperative management strategy and evaluation process in their efforts to reduce loadings of toxic chemicals to the Niagara River. Under this plan, the

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four agencies have worked together to develop mutually agreed upon sampling and analytical protocols. The parties have targeted certain priority toxics and have committed to reducing the point and non-source loadings of these chemicals by 50% by 1996. A workplan is revised annually to reflect new operating methods and activities. The goal in the long run is consistent with the 1987 protocol amendment of zero discharge of toxic chemicals into the Lakes (Environment Canada, EPA 1988).

5.4 Lake Ontario Toxics Management Plan

The same four parties represented in the the Niagara River Toxics Management Plan are also parties to the lake Ontario Toxics management Plan. The goals are also similar, the reduction and eventual elimination of toxic discharge into Lake Ontario. The Lake Ontario Toxics Committee has been formed to carry out the goals of the Plan. Implementation is a two step process. First, an aggressive public outreach effort has been carried out to ascertain the opinion of the public. The results of this effort are reported in the Public Responsiveness Document. The next step will be to develop a working plan to gather additional necessary information and develop a management framework for clean-up. The parties are encouraged to proceed to implementation as soon as possible (Lake Ontario Toxics Committee, 1989).

In addition to the IJC, the Federal, and State programs, there are other programs that operate on a cooperative basis among these three larger entities. Examples of such initiatives within the United States include the Green Bay Mass Balance project, and the Lake Michigan Toxic pollutant Control/Reduction Strategy. Under both of these plans, EPA is working in conjunction with State agencies on Great Lakes projects. The Mass Balance Project is developing and testing a modeling framework to increase understanding of the sources, transport and fate of toxics. The Lake Michigan Project incorporates all States that border on Lake Michigan. All the states have committed to reductions in the loading of toxic pollutants. This plan hopes to make use of the Green Bay Mass Balance Project in the further development of reduction plans (EPA 1988).

6. SPECIAL ISSUES OF COOPERATIVE PLANNING

6.1 Structural Elements of the International Agreements

There is a number of factors that influence the cooperative process and the level of commitment once the basic concepts of

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cleaning up and protecting the environment have been agreed to. Following are some of the factors that have been identified:

Specific Versus General Mandate: The nature of these agreements, centralized goals with decentralized implementation, has proven to be a pivotal basis in the cooperative process. The international agreements as well as the interstate agreements focused on building a common view of the Great Lakes and the environmental problems that are associated with them. Targets were set for specific reductions in emissions, but the agreements did not discuss how these goals should be met. The agreements specified what was to be done, not how to do it. In addition, both Canada and the United States further decentralized the process by leaving primary responsibility for implementation with the State and local governments. This can have both positive and negative implications.

On the international level, it is much easier to come to such an agreement when there are fewer details. On an intra-state level this decentralization is beneficial in that the states and provinces are most familiar with the situations at hand and are aware of the political, economic, and social implications that might be associated with any specific policy option. This should mitigate resistance to implementation and enlist the local citizens as stakeholders both in the policy process and the outcome. On the other hand, because there are no specifications of what to do, there can be differing levels of commitment towards implementation. In this case we have a situation in which the goals are agreed on by the Federal governments, but the State and local governments must expend the resources for compliance.

The government of Canada, while leaving primary responsibility for implementation with Ontario, committed funding in order that Ontario could achieve the agreement that the Federal government had signed. In the United States, the Federal government has not targeted any funding for the States directly for compliance with the Water Quality Agreements. The States have been left to their own resources to fund the additional programs necessary for compliance, although there has been Federal involvement through the various agencies that have jurisdiction over specific issues.

The Crucial Function of Adequate Funding: One of the potential downsides to the decentralized implementation is that, while the intentions are good, the funding necessary to carry out the agreements is not institutionalized and therefore may not be forthcoming. Funding is absolutely necessary to fulfill the obligations agreed to when the agreements were signed. Canada and the United States approached the problem of funding in two very different fashions. It appears that the method utilized by Canada is more effective.

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Event Driven Actions : While some actions come about slowly in response to a growing awareness of some problem, others are driven by a specific event. The actual event does not have to be within the geographic region for which the policy is being discussed, but it is usually something that the citizens and politicians of the area can identify with. It is something that could possibly happen within their jurisdiction and the fact that the event happened elsewhere simply highlights their perception of vulnerability. For example, the Exxon oil spill in Alaska's Prince William Sound, caused the Council of Great Lakes Governors to realize that such a disaster could happen in the Great Lakes. They therefore signed the Great Lakes Oil Control Strategy Agreement (Council of Great Lakes Governors Summary 1989).

These events can be neither predicted nor planned for, but when they do happen, if the proper institutional structures exist, they can become a catalyst for further cooperation. It is important to have an organizational structure in place that is flexible enough to respond to surprise events and that can initiate actions in the case of a sudden adverse effect. It may even be advantageous to have a subcommittee of one of the governing agencies or Commission deal specifically with crisis management. Such a subcommittee must be connected to local agencies or disaster relief organizations in order to be effective and responsive to public needs.

6.2 The Role of Citizen Involvement and Special Interest Groups

Citizens in the Great Lakes Basin have continued to have an important role in the policy regarding the Great Lakes. The increasing degradation of the Lakes and the eutrophication caused citizens to demand that something be done to protect the quality of the water. The 1972 Great Lakes Water Quality Agreement was the international policy response. Since then citizens have been important in informal oversight functions.

It is interesting to note that the traditional conflicts between industry on one hand and environmental groups on the other, have not been central to the policy making process. The common stereotype of industrialists pushing for profits rather than caring for the environment and of environmental groups neglecting economic viability in the pursuit of environmenal protection has to be replaced by a more complex structure of interests and public concerns. Many industries and economic enterprises, specifically the high-tech sector as well as the service sector, are actively promoting an environmental clean-up program and play an active part in some of the citizen advocacy groups. At the same time, some of the environmentally active

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groups favor the promotion of economic development within the limits of sustainable growth.

The Great Lakes can serve as an example of the novel formation of interest groups. On one side, traditional industries, developers, and part of the administrative system join forces to slow down the process of environmental policy making in the area. On the other hand, many new industries, the young entrepreneurs, scientists, and affected citizens have formed a coalition to speed up the process of environmental policy making. This process has been more pronounced in the United States where alliances to traditional coalitions and parties have never been very stable. In Canada, many of the established division lines between industry and environmentalists prevail. However, the consensual system there provides more incentives for these groups to initiate a dialogue whereas in the United States the adversarial nature of politics prevents the different interest groups from direct cooperation (Interview with P. Weller).

All interview partners expressed some degree of appreciation for the input from the citizen groups even if they disagreed with the position that these groups had taken. The common complaint that citizens are uneducated, biased in their views, or mislead by a sensational press were not echoed by most of our interview partners. Although some felt that the health risks posed by organic toxics from the Great Lakes were exaggerated in the public, they nevertheless assigned the citizen groups a high degree of rationality and knowledge. It seems that the coalition of "Yuppis", scientists, entrepreneurs, sportsfisher, and other interest groups provides an internal incentive to search for scientific evidence and to balance different competing interests, before the positions are made public.

It is certainly impossible to transfer such a coalition to another country. The lesson to learn from this observation is, however, that policy makers in other countries should not deal exclusively with the established interest groups, but make an attempt to integrate a large variety of interest groups and even not (yet) organized citizens into the policy process. Such an effort may help to initiate a process of spontaneous organization and reformation of interests. It depends on the special dynamics of the situation and the cultural background whether a novel coalition is formed and which groups will join that coalition. It can only be in the interest of policy makers to provide incentives for the formation of an informed and politically active citizen representation.

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6.3 The Role of Science

Science has played an important role in the cooperative policy regarding the Great Lakes. As the dominant issue of concern has shifted from water management to water quality, the policy makers have become increasingly dependent on science to help identify areas of concern. The ability of science to detect trace amounts of chemicals was pivotal in the formation of the 1978 Water Quality Agreement in which the primary focus is on toxic pollutants. It was under mandate from this agreement that the Great Lakes Science Advisory Board was formed. This is an explicit acknowledgement of the important role of science in cooperative policy planning. In addition to sounding the alarm regarding the dangers and the degree of toxic chemicals found in the Great Lakes, science also plays an increasingly important role in recommending standards, monitoring the conditions in the lakes, and aiding in the modification of priorities and goals.

In recent years, scientific groups were specifically active in promoting new paradigms of policy making and environmental regulation. The politization of scientific groups, however, has invigorated the debate on the role of science in the policy process. Since issues of risk and probabilities lend themselves to subjective interpretation and often lead to intra-scientific controversies, there is normally a wide range of legitimate conclusions from identical data sets. The inference from "what is" to "what ought to be" adds an additional subjective component to the statements made by scientists. As a result, the more politically active scientists have been in the debate, the more they have given up the "objectivity" of scientific evidence and entered the realm of advocacy. This transition has certainly benefited the citizen groups who --as stated above-- have absorbed many scientists into their midst. The loss of objectivity, however, weakens the ability of science to act as an integrative force in conflict resolution.(Coppock 1985). Many scientists in our interviews expressed concerns about the politization of science and its instrumentalization for rationalizing positions.

Figure 3 is based on an interview with one of scientists, Dr. Warren Flint from the State University of New York in Buffalo. In his view, there are four legitimate areas of involvement for scientists: to do basic research, to engage in applied research, to work on an integrated bigger picture, and to promote a specific cause. The more scientists tend to move to the right side of the tasks, i.e. broaden their mission, the more they lose credibility on the left side, specifically in the area of basic research. Such a move is accompanied by a shift in the incentive system. Peer review is less important for an advocate; his or her reputation is based rather on social recognition and public awareness.

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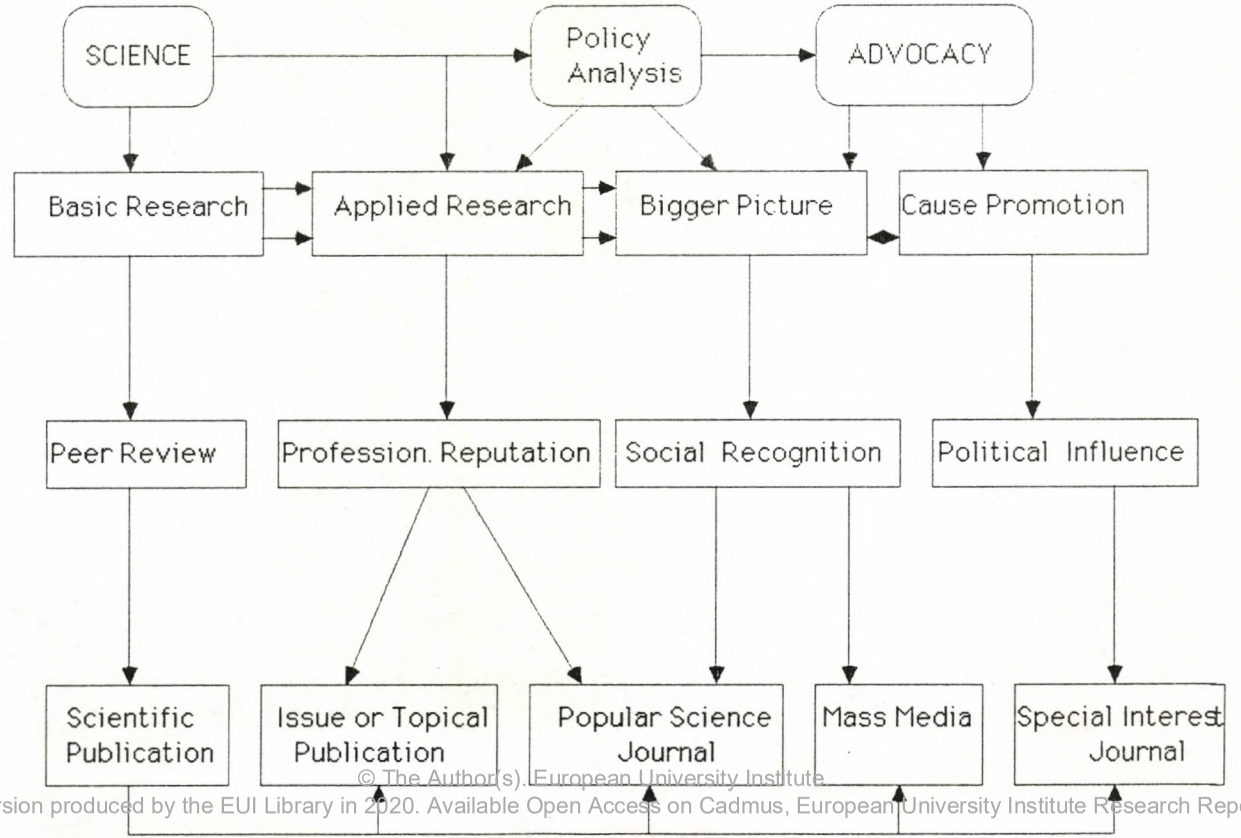
Fig. 3: Relationships between Science, Polity, and Advocacy



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The deficit of this shift is that the most needed input by scientists for integrating policies, i.e. the construction of an unbiased bigger picture, is least rewarded within the science system and by advocacy groups. As a result, scientists tend to group themselves along the two poles of this spectrum: either to stay within the scientific community by doing basic and some applied research or to move to the other extreme and become a scientific advisor to a special interest group. If science is to serve as an integrating force, some incentives have to be provided for scientists to combine such a role with career ambitions and personal reputation.

7 EVALUATION OF COOPERATION PROCESS

7.1 Evolution of Underlying Principles of Policies

The development of an environmental policy for the Great Lakes Basin that is acceptable to all parties involved has been an evolutionary process. It is a process that continues to evolve as new agenda items are identified and the goals of society change. For example, the 1989 Fourth Biennial Report of the International Joint Commission is already anticipating changing issues, such as prevention instead of clean-up and the need to have an adaptive strategy to deal will uncertain futures (IJC 1989).

The policy evolution for The Great Lakes Clean-up can be structured into five distinctive steps:

1. *Water Quantity Management:* The first stage in cooperative policy making evolved out of concern for excessive water use and shipping problems. Questions of water quality did not surface and were seen as irrelevant given the vast quantity of water in the Lakes.
2. *Programs against eutrophication and visible impacts:* Starting with the 1970s, the quality of the Lakes became a major political issue. The environmental movement, though not centered around the Great Lakes, stimulated public concern about the Great Lakes environment. This public concern was further fueled by visible pollution of the Lakes, particularly Lake Erie. Due to the unfiltered discharge of waste water, Lake Erie was over-saturated with nutrients which precipitated an excessive growth of algae. The visible deterioration of the Lakes in conjunction with economic losses of the fishing industry provided sufficient stimuli for the political actors to get involved in a massive clean-up program. Within ten years the Lakes were cleaned from phosphorus and municipalities and industries were forced to

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build water treatment plants to reduce pollution. By 1989, more than 85 percent of all effluents were cleaned in a water treatment plant (EPA 1988).

3. *Point Source Reduction:* The next stage in the clean-up effort included the typical industrial toxics, such as heavy metals and organic substances. By imposing point source emission limits and by setting ambient standards for toxics at the point of discharge, the overall burden to the Great Lakes was drastically reduced. The Joint Commission advocated zero discharge as their final goal, but the usual principles of ALARA (as low as reasonably achievable) and BACT (best available control technology) were applied to define practical limits of emission.
4. *Mass Balance Approach:* The shortcoming of the point source reduction strategy is that it does not work toward an absolute reduction in the total amount of pollutants discharged into the entire system, but rather only addresses relative levels of reduction. Even if all polluters reduce their emissions, the absolute levels may increase due to the cumulative and persistent nature of toxic substances (Flint 1990). The Mass balance approach models the fate of each toxin through its entire life-cycle and investigates the accumulation versus degradation rate. In accordance with this concept, the amount of discharges allowed to enter the system should be equal to the amount which is biodegraded or otherwise removed from the system.
5. *Ecosystem Management:* The mass balance approach which is presently pursued by EPA and Environment Canada leads to a more comprehensive ecosystem management. This novel concept implies that the mass balance is not only kept constant, but is reduced to lower levels, if the ecosystem is already damaged by the amount previously discharged into the Lakes. In addition, the systems approach requires a more comprehensive environmental strategy, including land use management, the application of bio-indicators as early warning system, and preservation of bio-diversity.

These five evolutionary steps build upon each other and illustrate the dynamic nature of environmental policies. The change in underlying principles or paradigms, most notable in the shift from an acceptable risk reduction principle to a cumulative mass balance approach, signals the change in values of the North American population, but is also an indicator of the scientific advancement in studying environmental problems. The mass balance approach is based on complex computer models and a better insight into the process of bio-accumulation and load allocation.

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7.2 Escalation of Concerns and Policy Issues

The cooperative strategy that the international agreements are based on reflects an evolutionary understanding of the problems and the corresponding remedial philosophies. This can be seen at all levels, both horizontally between nations and states, as well as vertically as with the Remedial Action Plans. The first international agreement, the Boundary Waters Treaty, was limited in scope and had a very narrow focus. The parties agreed to work together towards common management of the lake as a resource, but they were not required to implement any internal policy that might have impacted citizens through changed behaviors. As society's agenda shifted to reflect environmental concern, so to did the scope of the international agreements. The 1972 agreement, concerned primarily with the aesthetics of the water quality was able to build on the previous agreement. The goals were focused on reducing the nutrient loading of the lakes that was responsible for the eutrophication. The actions that the countries were required to take could be targeted easily, wastewater treatment and the reduction of phosphorous emissions into the lakes.

The Water Quality Agreement of 1978 continued to build on the existing institutions while expanding the goals in order to accommodate the changing desires of society. The emphasis on both the clean-up of toxics in the water and the elimination of toxic emissions is a much more intractable problem and requires the resources and cooperation of numerous agencies. Finally, the 1987 protocol amendment reaffirmed the previous agreements, put in place some institutional processes to accomplish the goals and emphasized a growing awareness of the Great Lakes Basin ecosystem. This ecosystem approach is again an expansion of the scope of the international agreements. No longer is the issue only water quality. It has now been expanded to included all activities in the Basin that might affect the health of the ecosystem. It is unlikely that this is the last agreement and it should not be viewed as such. Rather as the scope of knowledge changes and the environmental awareness of society expands, there will be yet another agreement that will incorporate these changing perceptions.

This escalation, both in the scope of the issues addressed and in the breadth of the policy can also be seen in other contexts. For example, the first agreement signed by the Great Lakes Governors Council, the Great Lakes Charter, was concerned primarily with managing the water as a resource. Specifically, the issue was water diversions. Building on this precedent in order to reflect the changing awareness of humans relationship to the Lakes, the Governors signed the Toxic Substances Control Agreement. Finally, to reaffirm the

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previous commitments and strengthen implementation, the Great Lakes protection Fund Agreement was signed.

It is clear that the precedent set by each agreement is valuable, both in setting the mechanisms for future agreements as well as for the perception of what can be accomplished within the specific context. Had Canada and the United States set out to formulate an all encompassing ecosystem approach from the start it is unlikely that they would have succeeded. Each success, or failure, provides a valuable base upon which to expand and build in the continual succession of shifting perceptions of humans relationship to the Great Lakes.

7.3 Benefits and Problems of the Process

As with any policy, there are both strengths and weaknesses in the Great Lakes clean-up program. Many of the strengths developed through a process of trial and error as policy has been developed, implemented, evaluated, and subsequently adjusted to further the desired goals. The problems have tended to be either incidental to the policy process, issues that simply have not yet been addressed, or issues that remain too difficult to reach an agreement on. The dominant characteristics of the policy process as it has evolved have proven to be both beneficial and problematic, depending on the perspective of the evaluation.

The centralized goals are beneficial in that all governmental stakeholders involved, federal, state, provincial, and local are working towards the same goals. There is a common vision of how the Great Lakes should be in the future and a common commitment to work towards this vision. By specifying goals and not mechanisms, an international agreement that is acceptable to all parties is more readily accessible and international cooperation is thereby easier to obtain. At the same time emphasis on goals and not mechanisms can lead to inequities in implementation. Each country has its own political process that can further or hinder the accomplishment of the goals. By not specifying mechanisms it is easier to come to an agreement, but at the same time, the implementation process is then subject to the internal political process and may; therefore, be delayed or watered down.

Funding for implementation exemplifies these problems. Had funding been specified as a criteria for the agreements it is questionable whether such agreements could have been finalized. At the same time, now that the agreements are in force, it is clear that funding is one of the most problematic aspects of implementation. There has been insufficient funding for preparation of the Remedial Action Plans as well as implementation of all phases of the clean-up.

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Another area that has proven to be problematic deals with the idea of studying the problem rather than correcting it. The Water Quality Agreements call for both research and implementation of corrective policy. Since research is financially, socially, and politically easier to initiate than implementation, the focus of most activity has been research.

The decentralized implementation has also proven to be both beneficial as well as problematic. One of the major strengths of the Great Lakes clean-up program is the implementation at the local level. This allows for the incorporation of many stakeholders that might otherwise be excluded, thus making successful implementation more likely. There have also been problems with this system. For example, it is taking longer than expected to develop the RAPs. As a result, the actual clean-up is later than expected. This can be seen as a function of two aspects of the program. The first is the lack of sufficient funding which was discussed earlier. The second is simply that the more stakeholders that are involved the more difficult it is to reach an agreement. The fact that the RAPs are taking longer than expected may, in part, be viewed as a result of unrealistic expectations. Given that the concept of the RAPs is new, there was no other precedent to proceed by when determining the timing of the process. It appears that the difficulties of a consensual process were under-estimated. This might necessitate a shifting in perceptions of the RAPs, but in not way should be taken as condemnation. Given the fact that the RAPs are dependent on the local citizens and political processes, the outcomes can vary a lot depending on the persons involved.

Another function of the decentralized implementation has been a fragmentation of responsibilities. In both Canada and the United States, there are numerous agencies involved in small parts of the program. Since the United States has many more governmental jurisdictions involved this fragmentation is more apparent in the U.S., but it can also been seen in Canada. For example the department of fisheries is responsible for the well being of the fish in the lakes, the department of forestry and agriculture is responsible for non-point run-off sources of contamination, and the department of atmosphere is responsible for airborne deposition. This has resulted because both in the United States and in Canada, implementation has, for the most part, been effectuated through existing institutions.

One of the problems with this fragmented implementation is a redundancy of effort. The numerous layers and levels of jurisdiction have lead to a situation where, if jurisdiction is not clearly defined, two or more parties may address the same problem. Limited resources could be better utilized with strengthened systems of institutional information sharing. Sharing information may lead to a consensual

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process of sharing responsibilities rather than competing for the same administrative task.

There are two areas of the program that appear to have been beneficial to the whole process. These might be viewed as an underlying philosophy regarding the Great Lakes programs. The first is the integration of scientific advice, administrative routines, political processes, and citizen preferences. It is thought that this is one of the key ingredients of the program and a transfer of this concept can clearly help similar programs. In addition, the institutions and persons involved have been sensitive to changing needs of society and have been able to respond as new environmental paradigms evolve from pollution control and aesthetics, to invisible toxics and now to the basin wide ecosystem approach. This ability to reflect the current social environmental ethics, and often to be at the forefront of these changes, has made it possible to build on existing institutions and experience and to meet the challenges posed by scientific discoveries and their interpretation by diverse interest groups.

7.4 Policy Evaluation

The policy process, both on the international and inter-state level, has received mixed reviews from the participants and outside observers. While some analysts claim that the outcome of the various programs has been worth the effort and even praise the Great Lakes as a model area for effective policy making, others have criticized the fragmentation of the policy process, the over-emphasis on research rather than clean-up, and the confusing mix of authorities and responsibilities. These critical remarks have been addressed more to the United States than to Canada. The Canadian approach, however, has also been the target for critical remarks. Some observers feel that the Canadians do not exercise enough initiative, other have complained about a lack of citizen participation and a preference of Canadian politicians to use the Great Lake clean-up program as a political vehicle for gaining public support without ascribing to its underlying principles.

Looking into the accomplishments so far, the policies were rather successful in reducing overall levels of heavy metals, many nutrients, and other pollutants. At the same time, however, toxic organic substances and nitrate concentrations are still on the rise and many sediments of the Lakes are loaded with them. Overall water quality has clearly improved, but bio-accumulation of toxic substances in fish and other species has increased. These mixed results cannot be attributed to the Great Lakes policies alone. Many organic substances enter the Lakes through absorption of air pollutants into the surface water. These

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pollutants originate in other States or Provinces and are therefore outside of the jurisdiction of the constituencies involved. The nitrates in the Lakes are mostly due to fertilizers from agricultural land. As long as nitrogen containing fertilizers are almost unregulated, there is little chance of reducing the amount of runoff.

The success of environmental policies cannot be measured in the effectiveness of pollution control alone. Other relevant indicators are: ratio of costs over pollution reduction; share of costs for administrative purposes; success of international harmonization of policies and guidelines; satisfaction of citizens with the resulting policies; equity of cost burden and benefits; and many others. We received lots of anecdotal evidence for each of these criteria, but given our resources and time frame we were unable to do a valid and reliable policy evaluation on each indicator. The anecdotal evidence convinced us, however, that in each of these dimensions, the Great Lakes policy process was at least somewhat successful, with some notable exceptions. For example, the U.S. States and Canada failed to provide their sports-fisher with a common set of guidelines for fish consumption. The States and the Province of Ontario issued fish advisories that contain conflicting information and are based on different health standards. Although meant to reduce the risks of eating contaminated fish and to ensure the population that the agencies are concerned about public health, they added to the confusion of the local population and had a similar effect to the one caused by the confusion in Europe over food standards for radiation after the Chernobyl accident.It is difficult to understand why one is allowed to consume one type of fish in Michigan while being advised to avoid eating the same type of fish in Wisconsin.

Whether a different policy structure would have resulted in a better outcome, cannot be answered here in any reliable way. It seems, however, that in comparison with other areas, the structure of an International Commission, assisted by a commission of agency representatives and a commission of scientific experts, was flexible enough to absorb new environmental demands and scientific knowledge and to translate these insights into practical policies. Furthermore, the political position of the IJC provided many incentives to the State and Provincial governments to follow the recommendations and take up their responsibility in planning their own policies. A problem, specifically for the Unites States, has been and continues to be the separation of policy making from policy implementation. The recommendations of the IJC do not necessarily take fiscal constraints into their account, although they try to anticipate them. The actual remedial programs are often ill-funded and are hampered by overlapping authorities and unclear responsibilities.

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A common complaint from many groups in the United States and Canada was the allocation of the existing funds to different purposes. Although we were not able to obtain the exact share of funds for different purposes, we gained the impression that almost two thirds of all money is going into research, while one third is devoted to coordination, education, and remedial action (cf also Brickman and Ilgen 1982). The preference for research may indicate the remaining uncertainties about toxicological and epidemiological dose-effect relationships, but it can also be interpreted as a political strategy to please all constituents, the environmentalists as well as the industrialists, by spending money on research rather than on regulation or clean-ups. Research does not hurt anyone and is easy to initiate. This appeasement policy is only effective in the short term. If taxpayers find out that in spite of all the public money spent for environmental programs, the quality of the Lakes has not improved (only the knowledge about its pollution), they are likely to blame the politicians or the agencies for wasting public resources. Since the complaints about the emphasis on research spending were also raised by scientists who actually benefit from this system some re-allocation seems to be justified.

The Great Lakes policy process also provides some insights into the efficacy of the two governmental approaches. The adversarial structure of the United States resulted in a multitude of actors, partially competing with each other and partially complementing each other. The more consensual approach in Canada provides a more streamlined process and more cooperative structure among the affected constituents. Although the Canadian structure with its logical flow and interdependencies seems to be more appealing at first glance (particularly from a European perspective), the U.S.-American "chaos" has also its advantages. As Prof. Boyer, one of the interview partners, pointed out, the U.S. approach enhances the resilience of the policy making procedure, creates a buffer zone between official politics and social interest groups, and provides a forum for many specialized constituents to voice their opinion and to be part of the process (cf. also Coppock 1986). Many new initiatives for the Great Lakes as well as new ideas or principles were originated in the United States rather than Canada. On the other hand, neither Boyer nor other interviewed persons denied that the U.S. procedure is more fragmented, that it can lead to the duplication of efforts, and that it is more time consuming than the policy process in Canada. Both systems have their advantages and disadvantages, but they may supplement each other well. The United States may contribute more in terms of incorporating public concerns and novel policy approaches into the policy formulation process, while the Canadian side may lead in terms of effective

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implementation and local enforcement. Obviously it is neither possible nor desirable to export a country's regulatory style to another country, but joint efforts between countries can focus on the positive elements that each style has to offer.

8. RECOMMENDATION

8.1 Procedural Recommendations

The Great Lakes, as a model for the Mediterranean Sea, has both advantages and disadvantages. In either case, the notion of transferring institutions and policy should be taken as a fluid adaptive process. While there are many differences between the Great Lakes and the Mediterranean Sea and the countries that border on their respective shores, the historical development of the cooperative process in the Great Lakes, and the institutional mechanisms that have evolved should provide insight into the enhancement of such a process for the Mediterranean Sea. Given the great number of countries that border the Mediterranean Sea and the differing levels of political and economic development as well as social environmental awareness, the decentralized approach to implementation would appear to be appropriate.

From the perspective of the policy makers managing the Mediterranean Sea, it would appear that this decentralized implementation would be beneficial. With so many countries, each with a different agenda, political climate, economic strength, and social environmental awareness, this decentralized approach allows each country to implement the overall goals with a policy that is compatible with the above factors. At the same time, however, it is crucial that the implementation process is monitored and controlled by a centralized oversight committee, similar to the Joint Commission of the Great Lakes. Some existing political bodies such as the European Community or the United Nations Environment Program (UNEP) might initiate such a move because both have been active in designing and implementing environmental protection programs for the Mediterranean region (Mediterranean Action Plans by UNEP and the Mediterranean Strategy and Action Plan by the European Community).

Our suggestion would be to have an integrated policy program that defines the overall goals and objectives for the Mediterranean Sea and outlines a long term plan for accomplishing these goals. The plan should contain benchmarks of what has to be achieved in a specific time period. Such a plan should not be based on the present regulations which vary considerably between the affected countries, but should be anchored in a vision of a sustainable ecosystem and its imperatives. In

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analogy to the Great Lakes program, different stages of environmental policies could be envisioned: the first stage being devoted to sewage water treatment and effluent reduction; the second stage to reducing ambient pollution from runoff and tributaries; the third stage to introducing a mass balance approach to stabilize the pollution cycle and the fourth stage to implementing an ecosystem management program. Many of the existing management plans such as the Environmental Regional Program initiated by the European Commission or the Environmental Program for the Mediterranean implemented by the World Bank and European Investment Bank have identified similar stages for the development of policy priorities (The World Bank and the European Investment Bank 1990). Considering the experiences with the four stages of clean-up in the Great Lakes Basin, it has proven prudent to keep all stages in mind from the beginning of a program. For example, some crucial elements of the fourth stage, such as land use management and preservation of bio-diversity, should be included in the program at an early stage since implementing these objectives may become excessively expensive over time.

Another critical issue is funding. The major drawback of the U.S. program was the lack of sufficient funds to implement the objectives of the bi-national agreements. Furthermore, the setting of objectives without considering budget constraints is an invitation to political frustration. It is therefore essential to make funds available for the program prior to the specification of the policies. It is easy to come up with a wish-list that cannot be financed; budget constraints should be an integral part of the policy design. It appears that funding may not be as much of a problem for many environmental projects in the Mediterranean area since various organizations, including the World Bank and the European Investment Bank, have already committed considerable funds for the improvement and protection of the Mediterranean Sea. At the same time, however, it is imperative that such funding is put to the best possible use. This can only be done if all stakeholders, scientists, administrators, political, social, and industrial representatives are involved in the management process at an early stage. The continuation of funding should be made contingent on the accomplishments of the benchmark objectives for each time period specified in the various management plans.

The distinction in remedial action plans and an integrated management plan as mandated by the International Agreements and controlled by the Joint Commission may also serve as a role model for the Mediterranean Sea. In accord with the 1975 Barcelona agreement on preserving the marine environment and establishing Mediterranean Action Plans (MAPs) and in the spirit of the Genoa Declaration of 1985 with its list of policy priorities, areas of special concerns could be

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identified and a policy process initiated in which local authorities, scientific advisors, and regional interest groups work together on a remedial action plan to either clean-up existing pollution or to preserve a unique ecosystem. The present activities of the European Commission to initiate an integrated management plan for coastal biotopes and to promote community action for the protection of the environment could be integrated into a more comprehensive policy making effort to establish a visionary plan for the whole area and to encourage local or regional authorities to design regional action plans in analogy to the RAPs in the Great Lakes Region. In acknowledgement of the fact that many initiatives from Brussels (EC) or Paris (UNEP) are bound to fail if the local and regional authorities do not cooperate, any effort should be made to convince the local constituents that environmental policies are in their own interest and serve their local economy in the long run.

In addition to these regional projects, an overall management plan is essential to set target goals and to deal with translocal problems, in particular ambient water quality and ecosystem management. Such programs are difficult to implement because there is no immediate reward for the parties involved. One of the main lessons we learned from our interview partners was that *environmental planning on a larger scale was only successful if it was integrated in the larger context of economic development.* The vision of a clean industry structure in conjunction with an environment that would attract skilled workers as well as tourists constituted a powerful incentive for all parties to invest in environmental quality. The link between economic property and environmental quality has to be included in any environmental management plan. For example, the European Investment Bank already requires an assessment of major environmental impacts of all major projects that they fund. Commercial banks and industrial developers should follow their example. They may be motivated to do so if they feel that their economic concerns are also taken seriously by the environmental advocates and planners. To integrate the economic interests in the environmental management plans is necessary for two major reasons: First, the concerns of the industrial and the commercial sector can be addressed in the plan, thus avoiding a potential conflict, and, second, representatives of the business communities are given the opportunity to acknowledge the interdependency of ecological quality and economic prospects.

Finally, the Great Lakes policy process can serve as an example of the important role of different parties in the formation and implementation of environmental policies. The international character of most scientific communities and the almost universal agreement on scientific methodology makes scientists the ideal group for establishing and promoting international agreements. The role of scientists,

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however, is ambiguous. The more they are engaged in the policy arena, the more they lose credibility among their peers. In the U.S. context, many scientists who entered the political arena adopted a new role of being an advocate for a cause, thus substituting their scientific objectivity for loyalty to an interest group. Within the adversarial process in the United States, this shift to representing specific interests is counterbalanced by a political process in which all affected parties interact on the assumption that the struggle of the interest groups serves a catalyst for finding the true or best answer. Within the more cooperative European systems, the loss of scientific objectivity may be more detrimental since the policy process is more inspired by the "Common Good" approach in which all affected parties try to work on a consensual solution to a given problem (Bauman and Renn 1988; O'Riordan and Wynne 1987). In this context, science serves a crucial role of integration as it provides limits for unreasonable claims and offers intersubjective assessments of likely impacts for each policy option (Coppock 1985). As the scientific community becomes more "americanized" in the sense that peer review and basic research accomplishments become more important factors for gaining prestige than formal titles and appointments (as it used to be in Europe), the danger is apparent that scientists either refrain from entering the policy arena or look for prestige by assuming an advocacy function. In either case, scientists cannot play the role for which they are most needed. It seems necessary therefore to provide special incentives for scientists who work on the larger picture and act as broker between the experimental scientists and the policy designers.

In addition to the scientists, public interest groups can play a constructive and vital role in the policy formation process. They can serve as public watchdogs to make sure that local officials implement what they promise to do and can act as whistleblowers for environmental damage that has not yet been detected. The important lesson to learn from the Great Lakes is that these public interest groups are willing and capable of being constructive and rational in their policy demands. The stereotype of environmental groups as being NIMBY (not in my back yard) infected and fundamentally opposed to any kind of industrial development proved to be wrong in the case of Great Lakes United, the largest citizen group in the region. Such organizational behavior relies, however, on two conditions: First, the interest groups should incorporate many different citizen interests and understand themselves as an umbrella for a large segment of the population. Second, these groups have to be integrated in the policy process so that they can exercise responsibility for the policy outcomes they advocate rather than being relegated to the status of an unwanted opposition.

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8.2 Institutional Recommendations

The implementation of a procedure that includes the concerns and lessons mentioned above depends on the institutional structure. The Joint Commission was identified as the major institutional actor in the Great Lakes basin. Although we do not have enough data to evaluate the role of the Joint Commission thoroughly, the anecdotal evidence supports our impression that this structure is well-suited for dealing with a complex international issue.

It seems therefore advisable that a similar structure be developed in the European context. We could imagine a Joint Commission for the Mediterranean Sea consisting of representatives of each EC bordering country and the Commission of the EC. Such a commission can only succeed if it is appointed by a high level political institution, either the national parliaments or the cabinets of each country. To avoid merely political appointees, candidates may be nominated by each ministry for environmental affairs or the respective national environmental protection agency and confirmed by the higher political level. It is also possible that an existing multi-government agency or institution may be adapted to serve this function.

In analogy to the Great Lakes Joint Commission, the European Commission for the Mediterranean Sea should have two advisory boards: one with the senior representatives of the national administrations responsible for environmental policy making and implementation and one with senior scientists from the natural and social sciences. To attract senior scientists into this advisory board, the candidates should be nominated by each nation's academy of sciences and confirmed by the country's president or monarch . Even if this seems to be overdone, the crucial role of science in the environmental policy making process justifies substantial effort to assign sufficient prestige to this task. The German Academy of Sciences in West Berlin recently suggested the same procedure for a National Environmental Science Council (Umweltrat).

In contrast to the Great Lakes Joint Commission we recommend that the European Joint Commission for the Mediterranean Sea be given a budget for creating the policies and implementing transnational policy measures. The local and regional remediation action plans should be primarily financed by the regions, but matching EC funds could help to initiate and promote the process and to control its outcome. Without having a budget to base policies on, the new Commission will not be taken seriously and will likely be producing wish-lists that cannot be financed.

We also feel that the cooperative policy process in Europe requires the integration of major players into the policy process on the

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regional and international level. In addition to the two major advisory boards, policies should be evaluated by invited stakeholder groups, such as industry, banks, unions, and other key political actors. Although such consultations prolong the overall process, they prevent the creation of a powerful opposition and --even more important-- link environmental policies with existing plans for economic development. On the regional and local level, citizen participation should be encouraged so that a broad consensus on the remedial action plans can be accomplished. Again the risk with such an approach is that the policy process does not move forward and that the necessary consultations consume all the energy and the financial resources of the region. Linking Federal or EC funds to a satisfactory result of the process, however, may serve as a powerful incentive to overcome this difficulty.

The Great Lakes basin is certainly a unique region and both countries, The United States and Canada, are different in their political structure and culture from any of the European countries. Whether the policies that were successful in the Great Lakes area will also be successful in the European context is an open question. The recommendations here are meant as a first stimulus to think about procedures and institutional structures that have worked in another context and appear typical enough to be transferred to another region. More research and more case studies are necessary to confirm, modify or revise our conclusions. At this point, the recommendations are a reflection of an exploratory exercise rather than the results of a comprehensive scientific analysis.

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REFERENCES

Bauman, E.H. and Renn, O., Air Quality Standards and Regulatory Styles in West Germany and the United States. CENTED Research Report No. 4 (Clark University: Worcester 1989)

Brickman, R. and Ilgen, T., Controlling Chemicals: The Politics of Regulation in Europe and the U.S. (Cornell University Press; Ithaca and London 1982)

Canada-Ontario, Annual Report on the Canada-Ontario Agreement Respecting Great Lakes Water Quality 1986-1987. Queens Printer for Ontario, 1988.

Conservation Foundation Letter, The Great Lakes Basin: A Great Resource at Risk. No. 5, 1989. p 1-12.

Coppock, R., "Interactions between Scientists and Public Officials: A Comparison of the Use of Science in Regulatory Programs in the United States and West Germany," Policy Sciences, 18 (1985), S. 371-390

Coppock, R., Regulating Chemical Hazards in Japan, West Germany, France, the United Kingdom, and the European Community: A Comparative Examination (National Academy Press: Washington, D.C. 1986)

Council of Great Lakes Governors, The Great Lakes Protection Fund: An Investment in Our Region's Future. Pamphlet for distribution.

Council of Great Lakes Governors, Great Lakes Great Future. Pamphlet for distribution.

Council of Great Lakes Governors, Summary of Council Environmental Initiatives. September 1989.

Council of Great Lakes Governors, The Great Lakes Toxic Substances Control Agreement. May 1986.

Council of Great Lakes Governors, Great Lakes Protection Fund Agreement.

Council of Great Lakes Governors, Great Lakes Oil Spill Control Strategy Agreement. July 1989.

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Federal Signing Authority PC # 1986-3/378, Canada-Ontario Agreement Respecting Great Lakes Water Quality.

Great Lakes Program Newsletter, various issues.

Great Lakes United, Action Update. January 1990.

Great Lakes United, Policy Resolutions 7th Annual Meeting. May 1989.

Great Lakes United, Annual Report 7th Annual Meeting. May 1989.

Great Lakes United, A Citizens' Guide to the Great Lakes Water Quality Agreement. December 1988.

Great Lakes United Water Quality Task Force, Unfulfilled Promises: A Citizens' Review of the International Great Lakes Water Quality Agreement. February 1987.

Environment Canada, First Report of Canada under the 1987 Protocol to the 1978 Great Lakes Water Quality Agreement. December 1989.

Environment Canada, Great Lakes Action Plan. pamphlet for distribution.

Environment Canada, U.S. Environmental Protection Agency, Ontario

Environment Ontario, Background Information on MISA. Pamphlet for distribution.

Environment Ontario, MISA Update. Summer 1989.

Environmental Protection Agency, Great Lakes National Program Office, Five year Program Strategy for the Great Lakes national Program Office 1989-1993. December 1988.

Environmental Protection Agency, U.S. Progress in Implementing the Great Lakes Water Quality Agreement. 1988.

Francis, George R. Institutions and Ecosystem Redevelopment with Reference to Baltic Europe. Ambio, Vol. 17, No. 2 (1988.), p. 106-111.

Great Lakes Water Quality Agreement. The United States and Canada. 1972.

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Great Lakes Water Quality Agreement. The United States and Canada. 1978.

Great Lakes Water Quality Agreement of 1987 as amended by Protocol 1987.

International Joint Commission, Activities 1987-1988.

International Joint Commission, Remedial Action Plans for Areas of Concern. Pamphlet for distribution.

International Joint Commission, Fourth Biennial Report Executive Summary. March 1989.

International Joint Commission, Great Lakes Science Advisory Board Report to the IJC 1989 Highlights. October 1989.

International Joint Commission, Fifth Biennial Report on Great Lakes Water Quality Parts I and II. 1989.

International Joint Commission, Mass Balancing of Toxic Chemicals in the Great Lakes, The Role of Atmospheric Deposition. May 1988.

International Joint Commission, Great Lakes Water Quality Board Report to the International Joint Commission. 1983, 1985, 1987, 1989.

International Joint Commission, Great Lakes Science Advisory Board. 1987 Report.

Lake Ontario Toxics Committee, Lake Ontario Toxics Management Plan Executive Summary. February 1989.

Michigan Sea Grant College Program, Extension Bulletin. Pamphlets for distribution on each of the lakes. January 1989.

New York Ministry of the Environment, New York State Department of Environmental Conservation, The Niagara River Toxics Management Plan 1988 Revision. Albany 1988.

New York State/Department of Environmental Conservation, Great Lakes Management Agenda, Draft. July 1989.

O'Riordan, T. and Wynne, B., "Regulating Environmental Risks: A Comparative Perspective," in: P.R. Kleindorfer and H.C. Kunreuther

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(Eds..), Insuring and Managing Hazardous Risks: From Seveso to Bhopal and Beyond (Springer: Berlin u.a. 1987), S. 389-410

World Bank and the European Investment Bank, The Environmental Program for the Mediterranean. Preserving a Shared Heritage and Managing a Common Resource. (The World Bank and the European Investment Bank: Washington and Luxembourg, March 1990)

Treaty Between the United States and Great Britain Relating to Boundary Waters, and Questions Arising Between the United States and Canada. 1909.

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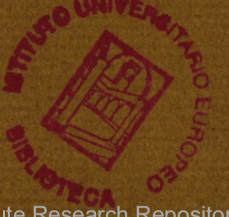

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